

**SRI BALAJI**

ACCREDITED BY NAAC  
WITH A++ GRADE



**VIDYAPEETH**

DEEMED TO BE UNIVERSITY  
DECLARED U/S 3 OF THE DCC ACT, 1956



# **INDIRA GANDHI INSTITUTE OF DENTAL SCIENCES**

SBV Campus, Puducherry - 607 402

**BACHELOR OF DENTAL SURGERY  
(BDS)**

**SYLLABUS, RULES AND REGULATIONS  
2024-2025 ONWARDS**

# **SRI BALAJI VIDYAPEETH**

(Deemed-to-be university declared u/s 3 of UGC act 1956)

*ACCREDITED WITH "A++" GRADE BY NAAC*

**INDIRA GANDHI INSTITUTE OF DENTAL SCIENCES**



## **B.D.S DEGREE COURSE SYLLABUS, RULES AND REGULATIONS 2023-24**



## INDIRA GANDHI INSTITUTE OF DENTAL SCIENCES

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## ANNEXURE

### MEMBERS OF BOARD OF STUDIES BOARD OF STUDIES HELD ON MAY 13<sup>th</sup> 2023

Chairperson	:	<b>Dr. Aruna Sharma</b> , Principal
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**Dr Rinku K George**  
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Department of Oral and Maxillofacial Surgery IGIDS

**Dr M Senthil**  
Professor and Head  
Department of Public Health Dentistry IGIDS

**Dr Vandana**  
Professor and Head  
Department of Oral Medicine & Radiology, IGIDS

Published after the approval of standing academic board

**SRI BALAJI VIDYAPEETH**  
(Deemed-to-be university declared u/s 3 of UGC act 1956)  
**INDIRA GANDHI INSTITUTE OF DENTAL SCIENCES**

**RULES AND REGULATIONS OF SRI BALAJI VIDHYAPEETH UNIVERSITY**

In exercise of the powers conferred by Ministry of Human Resources Development Notification No. F.9-53/2005-u-3 dated 20/7/09 and after the declaration of Indira Gandhi Institute of Dental Sciences as constituent teaching units under the ambit of the Deemed University Sri Balaji Vidyapeeth, the Standing Academic Board here by makes the following Rules and Regulations

These regulations shall be called:

**THE RULES AND REGULATIONS FOR THE BACHELOR OF DENTAL SURGERY  
DEGREE COURSE (B.D.S) OF INDIRA GANDHI INSTITUTE OF DENTAL SCIENCES**

They shall come into force from the academic year 2024-2025 session. The regulations and the syllabus are subject to modification by the Standing Academic Board from time to time.

## **Vision and Mission Statement of SBV**

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### **Vision**

**“To be in the forefront of higher education and to give the country  
the high calibre manpower”**

### **Mission**

- To provide collegiate education up to post-doctoral programs.
- To ensure high standard of behaviour and discipline amongst our student community.
- To produce Medical Professionals who are concerned with determinants of disease, disability and premature death and the organization of appropriate health services including Health Education and policy.
- To create a climate of joyful learning.
- To serve in particular the poor and minority population irrespective of caste and creed, who suffer disproportionately from illness and disability.
- To impart skills in students which will make them successful in their endeavours.
- To provide meaningful industrial education, research and training at all levels.
- To offer a wide range and flexibility of options especially in the areas of non-formal and continuing education.
- To set a high standard of professional conduct and ethics for staff and students.

## **Vision and Mission Statement of IGIDS**

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### **Vision**

To evolve as a centre of excellence in education, health care and research in dentistry.

### **Mission**

1. To provide progressive, relevant and robust academic and training environment for the students and staff to hone the necessary skills needed for a dental health professional.
2. To develop core competencies needed for the dentists of tomorrow and to be leaders in the field.
3. To stretch horizons of academic and clinical training and research to achieve and excel the global benchmark.
4. To reach out to the public, educate them in disease prevention and provide quality treatment.
5. To ensure high standards of discipline and professionalism among students.
6. To install ethical, humanistic and moral values in education, research and patient care.
7. To develop the spirit of inquiry and thirst for life-long learning in the profession to deliver quality of care.

## **Aims and Objectives of BDS Course**

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### **AIMS**

The dental graduates during training in the institutions should acquire adequate knowledge, necessary skills and reasonable attitudes which are required for carrying out all activities appropriate to general dental practice involving the prevention, diagnosis and treatment of anomalies and diseases of the teeth, mouth, jaws and associated tissues. The graduate also should understand the concept of community oral health education and be able to participate in the rural health care delivery programs existing in the country.

### **OBJECTIVES**

The objectives are dealt under three headings a. Knowledge b. Skills and c. Attitudes.

#### **a. Knowledge**

The graduate should acquire the following during the period of training:

1. Adequate knowledge of the scientific foundations on which Dentistry is based and good understanding of various relevant scientific methods, principles of biological functions and be able to evaluate and analyze scientifically various established facts and data.
2. Adequate knowledge of the development, structure and function of the teeth, mouth and jaws and associated tissues both in health and disease and their relationship and effect on general state of health and also bearing on physical and social well-being of the patient.
3. Adequate knowledge of clinical disciplines and methods which provide a coherent picture of anomalies, lesions and diseases of the teeth, mouth and jaws and preventive diagnostic and therapeutic aspects of Dentistry.
4. Adequate clinical experience required for general dental practice.
5. Adequate knowledge of the constitution, biological function and behavior of persons in health and sickness as well as the influence of the natural and social environment on the state of health in so far as it affects Dentistry.



**b. Skills**

The graduate should be able to demonstrate the following skills necessary for practice of Dentistry:

1. Able to diagnose and manage various common dental problems encountered in general dental practice keeping in mind the expectations and the right of the society to receive the best treatment available wherever possible.
2. Acquire the skill to prevent and manage complications if encountered while carrying out various surgical and other procedures.
3. Possess skill to carry out certain investigative procedures and ability to interpret laboratory findings.
4. Promote oral health and help prevent oral diseases whenever possible.
5. Competent in the control of pain and anxiety during dental treatment.

**c. Attitudes**

The graduate should develop during the training period the following attitudes:

1. Willing to apply the current knowledge of Dentistry in the best interest of the patients and the community.
  2. Maintain a high standard of professional ethics and conduct and apply these in all aspects of professional life.
  3. Seek to improve awareness and provide possible solutions for oral health problems and needs of the community.
  4. Willing to participate in the Department of Dental Education (DDE) program to update the knowledge and professional skill from time to time.
  5. Able to participate in the implementation of the National Oral Health Program.
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## **Competencies**

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At the completion of the undergraduate training program the graduates shall be competent in the following

### **1. GENERAL SKILLS**

- › Apply knowledge and skills in day-to-day practice
- › Apply principles of ethics
- › Analyze the outcome of treatment
- › Evaluate the scientific literature and information to decide the treatment
- › Participate and involve in professional bodies
- › Self-assessment and willingness to update the knowledge and skills from time to time
- › Involvement in simple research projects
- › Minimum computer proficiency to enhance knowledge and skills
- › Refer patients for consultation and specialized treatment
- › Basic study of forensic odontology and geriatric dental problems

### **2. PRACTICE MANAGEMENT**

- › Evaluate practice location, population dynamics and reimbursement mechanism
- › Co-ordinate and supervise the activities of allied dental health personnel
- › Maintain all records
- › Implement and monitor infection control and environmental safety program
- › Practice within the scope of one's competence

### **3. COMMUNICATION AND COMMUNITY RESOURCES**

- › Assess patient's goals, values and concerns to establish rapport and guide patientcare
- › Able to communicate freely, orally and in writing with all concerned
- › Participate in improving the oral health of the individuals through community activities

### **4. PATIENT CARE – DIAGNOSIS**

- › Obtaining patient's history in a methodical way
- › Performing thorough clinical examination
- › Selection and interpretation of clinical, radiological and other diagnostic, information obtaining appropriate consultation
- › Arriving at provisional, differential and final diagnosis

### **5. PATIENT CARE – TREATMENT PLANNING**

- › Integrate multiple disciplines into an individual comprehensive sequences treatment plan using diagnostic and prognostic information
- › Able to order appropriate investigations

## 6. PATIENT CARE – TREATMENT

- Recognition and initial management of medical emergencies that may occur during dental treatment
- form basic cardiac life support
- Management of pain including post-operative
- Administration of intra muscular and venous injections
- Administration all forms of local anesthesia
- Prescription of drugs, pre-operative, prophylactic and therapeutic requirements
- Uncomplicated extraction of teeth
- Trans alveolar extractions and removal of simple impacted teeth
- Minor oral surgical procedures
- Management of oral facial infections
- Simple orthodontic appliance therapy
- Taking, processing and interpretation of various types intra oral radiographs
- Various kinds of restorative procedures using different materials available
- Removable and fixed prosthodontics
- Various kinds of periodontal therapy

## Regulations Relating to B.D.S. Course

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### ADMISSION, SELECTION, COUNSELLING AND MIGRATION

#### 1. Age criteria

The candidate shall have completed the age of 17 years at the time of admission or will complete this age on 31st December of the year in which he/she seeks admission.

#### Qualification criteria

2. He / she has obtained a minimum of marks in National Eligibility-cum- Entrance Test as prescribed under the heading –Selection of Students
3. In order to be eligible to take National Eligibility - cum- Entrance Test He/she has passed qualifying examination as under:-
  - a) The higher secondary examination or the Indian school certificate examination which is equivalent to 10+2 higher secondary examination comprising of Physics, Chemistry, Biology and Mathematics or any other elective subjects with English at a level not less than the core course for English as prescribed by the National Council for Educational Research and training after the introduction of the 10+2+3 years educational structure as recommended by the national committee on education; introduction of the 10+2+3 years educational structure as recommended by the National committee on education;

*Note: Where the course content is not as prescribed for 10+2 education structure of the national committee, the candidates will have to undergo a period of one year pre-professional training before admission to the dental colleges.*

**OR**

- b) The intermediate examination in science of an Indian University/ Board or other recognized examining body with physics, chemistry and biology which shall include a practical test in these subjects and also English as a compulsory subject

**OR**

- c) The pre-professional / pre-medical examination with physics, chemistry and biology after passing either the higher secondary school examination, or the pre-university or an equivalent examination. The pre-professional / pre-medical examination shall include a practical test in physics, chemistry and biology and also English as a compulsory subject

**OR**

- d) The first year of the three years degree course of a recognized university, with physics, chemistry and biology including a practical test in three subjects provided the examination is a —University Examination and candidate has passed 10+2 with English at a level not less than a core course

**OR**

- e) BSc examination of Indian University, provided that he/she has passed the BSc examination with not less than 2 of the following subjects Physics, Chemistry, Biology (Botany, Zoology) and further that he/she has passed the earlier qualifying examination with the following subjects Physics, Chemistry, Biology and English

**OR**

- f) Any other examination which, in scope and standard is found to be equivalent to the intermediate science examination of an Indian university/board, taking physics, chemistry and biology including practical test in each of these subjects and English.

**Selection criteria:**

- I. There shall be a single eligibility-cum-entrance examination namely National Eligibility - cum - Entrance Test for admission to BDS course in each academic year.
- II. In order to be eligible for admission to BDS course for a particular academic year, it shall be necessary for a candidate to obtain minimum of marks at 50th percentile in —National Eligibility – cum-Entrance Test to BDS course held for the said academic year. However, in respect of candidates belonging to scheduled Castes, Scheduled Tribes, Other Backward classes, the minimum marks shall be at 40th percentile. In respect of candidates with locomotory disability of lower limbs terms of sub-regulation above, after the commencement of these amendments the minimum marks shall be at 45th percentile. The percentile shall be determined on the basis of highest marks secured in the All-India common merit list in — National Eligibility-cum-Entrance Test for admission to BDS course.

Provided when sufficient number of candidates in the respective categories fail to secure minimum marks as prescribed in National Eligibility-cum-Entrance Test held for any academic year for admission to BDS Course, the Central Government in consultation with Dental Council of India may at its discretion lower the minimum marks required for admission to BDS Course for candidates belonging to respective categories and marks so lowered by the Central Government shall be applicable for the said academic year only.

- III. The reservation of seats in Dental colleges for respective categories shall be as per applicable laws prevailing in States/Union Territories. An all India merit list as well as State-wise merit list of the eligible candidates shall be prepared on the basis of the marks obtained in National Eligibility-cum-Entrance Test and candidates shall be admitted to BDS course from the said lists only.
- IV. No candidate who has failed to obtain the minimum eligibility marks as prescribed in Clause (ii) above shall be admitted to BDS course in the said academic year.
- V. All admissions to BDS course within the respective categories shall be based solely on marks obtained in the National Eligibility-cum-Entrance Test.
- VI. To be eligible for admission to BDS course a candidate must have passed in the subjects of Physics, Chemistry, Biology/Biotechnology and English individually and must have obtained a minimum of 50% marks taken together in Physics, Chemistry and Biology/Biotechnology at the qualifying examination as mentioned in Sub-regulation 2 of Regulation I and in addition must have come in the merit list of —National Eligibility –cum- Entrance Test for admission to BDS course. In respect of candidates belonging to Scheduled Castes, Scheduled Tribes or other Backward Classes the minimum marks obtained in Physics, Chemistry and Biology/Biotechnology taken together in qualifying examination shall be 40% instead of 50%. In respect of candidates with locomotory disability of lower limbs in terms of sub-regulation 4, after the commencement of these amendments, of Regulation I above, the minimum marks in qualifying examination in Physics, Chemistry and Biology/Biotechnology taken together in qualifying examination shall be 45% instead of 50%.

Provided that a candidate who has appeared in the qualifying examination the result of which has not been declared, he/she may be provisionally permitted to take up the National Eligibility-cum Entrance Test and in case of selection for admission to the BDS course, he/she shall not be admitted to that course until he fulfills the eligibility criteria under Regulation I.

- VII. The Central Board of Secondary Education shall be the organization to conduct National Eligibility-cum-Entrance Test for admission to BDS course.



### Common Counselling:

1. There shall be a common counselling for admission to BDS course in all Dental educational institutions on the basis of merit list of the National Eligibility-cum-Entrance Test.
2. The designated authority for counselling for the 15% All India Quota seats of the contributing States and all BDS seats of Dental Education Institutions of the Central Government, universities established by an Act of Parliament and the Deemed Universities shall be the Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India.
3. The counselling for admission to BDS course in a State/Union Territory, including, Dental Education Institutions established by the State Government, University established by an Act of State/Union Territory Legislature, Trust, Society, Minority Institutions shall be conducted by the State/Union Territory Government.
4. In case any dispute arises on such common counselling, the respective State Government shall refer the matter to the Central Government and its decision shall be final, in this regard.

### II. Duration of Course:

The undergraduate dental training programme leading to BDS degree shall be of 5 years with 240 teaching days in each academic year. **The BDS course shall be of four academic years plus one year compulsory internship program.** During this period the student shall be required to have engaged in full time study at a dental college recognised or approved by the Dental Council of India.

### III. MIGRATION

Migration from one dental college to another is not a right of a student. However, migration of students from one dental college to another dental college in India may be considered by the Dental council of India. Only in exceptional cases on extreme compassionate grounds, provided the following criteria are fulfilled. Routine migrations on other ground shall not be allowed:

- Both the colleges, i.e. one at which the student is studying at present and one to which migration is sought, are recognized by the Dental Council of India
- The applicant candidate should have passed first BDS university examination
- The applicant candidate submits his application for migration, complete in all respects, to all authorities concerned within a period of one month of passing the first professional Bachelor of dental surgery (BDS) examination
- The applicant candidate must submit an affidavit stating that he/she will pursue 240 day of prescribed study before appearing at 2nd professional bachelor of dental surgery examination at the transferee dental college, which should be duly certified by the registrar of the concerned university in which he/she is seeking transfer. The transfer will be applicable only after receipt of the affidavit.

#### Note 1:

- (i) Migration is permitted only in the beginning of IInd year BDS Course in recognised institutions.
- (ii) All applications for migration shall be referred to Dental Council of India by the college authorities. No Institution/University shall allow migration directly without the prior approval of the Council.
- (iii) Council reserves the right not to entertain any application which is not under the prescribed compassionate grounds and also to take independent decisions where applicant has been allowed to migrate without referring the same to the Council.

Note 2: "Compassionate ground criteria: (i) Death of supporting guardian. (ii) Disturbed conditions as declared by Government in the Dental College area.



## **TITLES OF SUBJECTS**

### **First year**

1. General Human Anatomy including Embryology and Histology
2. General Human Physiology and Biochemistry, Nutrition and Dietetics
3. Dental Anatomy, Embryology and Oral Histology
4. Dental Materials
5. Preclinical Prosthodontics and Crown & Bridge

### **Second year**

1. General Pathology and Microbiology
2. General and Dental Pharmacology and Therapeutics
3. Dental Materials
4. Preclinical Conservative Dentistry
5. Preclinical Prosthodontics and Crown & Bridge
6. Oral and Maxillofacial Pathology & Oral Microbiology

### **Third year**

1. General Medicine
2. General Surgery
3. Oral and Maxillofacial Pathology and Oral Microbiology
4. Conservative Dentistry & Endodontics
5. Oral & Maxillofacial Surgery
6. Oral Medicine and Radiology
7. Orthodontics & Dentofacial Orthopedics
8. Pediatric and Preventive Dentistry
9. Periodontology
10. Prosthodontics and Crown & Bridge

### **Final year**

1. Orthodontics & Dentofacial Orthopedics
2. Oral Medicine and Radiology
3. Pediatric and Preventive Dentistry
4. Periodontology
5. Oral & Maxillofacial Surgery
6. Prosthodontics and Crown and Bridge
7. Conservative Dentistry & Endodontics
8. Public Health Dentistry

**Hours of Instruction**

<b>Subject</b>	<b>Lecture Hours</b>	<b>Practical hours</b>	<b>Clinical Hours</b>	<b>Total Hours</b>
General Human Anatomy Including Embryology, Osteology and Histology	100	175	-----	275
General Human Physiology	120	60	-----	180
Biochemistry	70	60	-----	130
Dental Materials	80	240	-----	320
Dental Anatomy, Embryology and Oral Histology	105	250	-----	355
Dental Pharmacology & Therapeutics	70	20	-----	90
General Pathology	55	55	-----	110
General Microbiology	65	50	-----	115
General Medicine	60	-----	90	150
General surgery	60	-----	90	150
Oral Pathology & Microbiology	145	130		275
Oral Medicine & Radiology	65	-----	170	235
Pediatric and Preventive Dentistry	65		170	235
Prosthodontics and Crown & Bridge	65	-----	170	235
Orthodontics & Dento-facial Orthopedics	50	-----	170	220
Periodontology	80	-----	170	250
Oral & Maxillofacial Surgery	70	-----	270	340
Conservative Dentistry & Endodontics	135	200	370	705
Prosthodontics & Crown & Bridge	135	300	370	805
Public Health Dentistry	60	-----	200	260
<b>Total</b>	<b>1590</b>	<b>1540</b>	<b>2240</b>	<b>5200</b>

*Note: There should be a minimum of 240 teaching days every academic year consisting of 8 working hours including one hour of lunch break.*

*Internship-240x8 hours=1920 clinical hours.*

**Subjects in First year BDS and hours of instruction**

<b>Subject</b>	<b>Lecture Hours</b>	<b>Practical hours</b>	<b>Clinical Hours</b>	<b>Total Hours</b>
General human anatomy including embryology, osteology and histology	100	175	-----	275
General human physiology	120	60	-----	180
Biochemistry	70	60	-----	130
Dental materials	20	40	-----	60
Dental anatomy, embryology and oral histology	105	250	-----	355
Pre-clinical prosthodontics & crown and bridge	-----	100	-----	100
<b>Total</b>	<b>415</b>	<b>685</b>	<b>-----</b>	<b>1100</b>

**Subjects in Second year BDS and hours of instruction\***

<b>Subject</b>	<b>Lecture Hours</b>	<b>Practical hours</b>	<b>Clinical Hours</b>	<b>Total Hours</b>
General and Dental pharmacology & therapeutics	70	20	-----	90
General pathology	55	55	-----	110
Microbiology	65	50	-----	115
Dental materials	60	200	-----	260
Oral pathology & microbiology	25	50	-----	75
Pre-clinical prosthodontics & crown bridge	25	200	-----	225
Pre-clinical conservative dentistry	25	200	-----	225
<b>Total</b>	<b>325</b>	<b>775</b>	<b>-----</b>	<b>1100</b>

\* Preclinical Paedodontics and Orthodontics may be integrated and modifiable based on the availability of hours.

**Subjects in Third year BDS and hours of instruction**

<b>Subject</b>	<b>Lecture Hours</b>	<b>Practical hours</b>	<b>Clinical Hours</b>	<b>Total Hours</b>
General medicine	60	-----	90	150
General surgery	60	-----	90	150
Dental materials	20	40	-----	60
Oral pathology & Microbiology	120	80		200
Oral medicine & Radiology	20	-----	70	90
Pediatric and Preventive Dentistry	20		70	90
Prosthodontics and preventive dentistry	20	-----	70	90
Orthodontics & Dento-facial Orthopedics	20	-----	70	130
Periodontology	30	-----	70	90
Oral and maxillofacial surgery	20	-----	70	90
Conservative dentistry & endodontics	30	-----	70	100
Prosthodontics and crown & bridge	30	-----	70	100
<b>Total</b>	<b>410</b>	<b>80</b>	<b>750</b>	<b>1160</b>

**Subjects in Final year BDS and hours of instruction**

<b>Subject</b>	<b>Lecture Hours</b>	<b>Practical hours</b>	<b>Clinical Hours</b>	<b>Total Hours</b>
Prosthodontics and crown & bridge	80	-----	300	380
Oral Medicine and radiology	45	-----	100	145
Periodontology	50	-----	100	150
Public Health dentistry	60	-----	200	260
Conservative Dentistry and Endodontics	80	-----	300	380
Oral and maxillofacial surgery	50	-----	200	250
Orthodontics and dento-facial orthopedics	30	-----	100	130
Pediatric and Preventive Dentistry	45	-----	100	145
<b>Total</b>	<b>440</b>	<b>-----</b>	<b>1400</b>	<b>1840</b>

Evaluation is achieved by 2 processes.

- a. Formative or internal assessment
- b. Summative or university examinations

Formative evaluation is done through a series of tests and examinations conducted periodically by the institution. Summative evaluation is done by the University through examinations conducted at the end of the specified course.

### **METHODS OF EVALUATION:**

Evaluation may be achieved by the following tested methods

1. Written test
2. Practicals examinations
3. Clinical examinations
4. Viva voce

### **SCHEME OF EXAMINATIONS**

1. The University shall conduct two examinations annually at an interval of not less than 6 months as notified by the university from time to time.
2. The scheme of examination of B.D.S. course shall be divided into 4 professional examinations, viz., I.B.D.S. Examination at the end of first academic year, II B.D.S. at the end of second academic year, III B.D.S. at the end of third academic year and Final year B.D.S. examination at the end of fourth academic year.
3. A pass in all 8 subjects is mandatory for completion of the final year BDS course before undergoing internship program.
4. Any student who does not clear the BDS course in all the subject within a period of 9 years, including one year Compulsory Rotatory paid Internship from the date of admission shall be discharged from the course. (7th Amendment to DCI Regulations, 2015, notified in Gazette of Government of India dated 23.05.2015).

### **ELIGIBILITY CRITERIA TO APPEAR IN UNIVERSITY EXAMINATIONS**

A candidate who satisfies the requirement of attendance, progress and conduct as stipulated by the university shall be eligible to appear in the University examination. Certificate to the above effect should be produced from the Head of the Institution along with the application for examination and the prescribed fee.

University shall organise admission timings and the admission process in such a way that the teaching starts from the 1st day of August in each academic year

#### **1. Attendance percentage requirement:**

- a. Each academic year consist of 240 days of teaching for 8 hours including 1 hour of lunch break. Every candidate shall have attendance of 80% in theory classes and 80% individually in Practicals / Clinicals in each subject in each year.
- b. In case of subject in which the instructional program extends more than one academic year and hence there is no University Examination in the subject during that year (i.e. non- exam going subjects), the attendance requirement shall not be less than 80% in Lectures and 80% in Practical / Clinical classes.

At the time of appearing for the professional examination in the subject the candidate should satisfy the condition as above.

- c. Candidate who is declared failed in any year, will be continuing their classes till the next exam to gain similar attendance percentage. This is however not applicable for a candidate who has carry-over subject.

## 2. Internal assessment marks requirement:

- a. Formative assessment in the form of internal assessments will done throughout the program. Quarterly internal assessment exams will be held. A minimum of three internal assessments will be held. The average of these three tests will be taken for the internal assessment marks. Apart from this a model exam will be conducted. Clinical or practical exams, clinical records and periodic assignments will also be assessed. Ten percent of the total marks in each subject separately for theory and practical / clinical examination separately should be set aside for the internal assessment examination.
- b. A minimum of 50% of internal assessment marks in theory and clinicals individually is mandatory to be eligible to appear in the final exam.
- c. Candidate who has failed in a particular subject or subjects should take the internal assessment examination in failed subject/s. If this new internal assessment marks is better than the previous it will be given due consideration.

## UNIVERSITY WRITTEN EXAMINATION

1. The written examination in each subject shall consist of one paper of three hours duration and shall have maximum marks of 70.
2. The theory paper will be evaluated by one internal and one external examiner
3. Syllabus with system weightage, and blueprint of the question paper as per the must know / desirable to know and nice to know, topic distribution will be provided to the paper setter.
4. Each theory paper will consist of two Parts with the following marks distribution:

<b>PART I</b>	20 MCQs 20 X 0.5 = 10marks			<b>TOTAL 10 Marks</b>
<b>PART II</b>				
	<b>SECTION A</b>	1 Long answer question 10marks	3 Short Answer Questions of 5 marks each	<b>TOTAL 25 Marks</b>
	<b>SECTION B</b>	1 Long Answer Question of 10 marks	3 Short Answer Questions of 5 marks each	<b>TOTAL 25 Marks</b>
	<b>SECTION C</b>	5 Very Short Answer Questions of 2 marks each		<b>TOTAL 10 Marks</b>
<b>GRAND TOTAL</b>				<b>70 Marks</b>



## **UNIVERSITY PRACTICAL AND CLINICAL EXAMINATION**

The specific scheme of clinical and practical examinations, the type of clinical procedures / experiments to be performed and marks allotted for each are to be discussed and finalized by the Chairman and other examiners and it is to be published prior to the conduct of the examinations along with the publication of the time table for the practical examinations. This scheme should be brought to the notice of the external examiner as and when the examiner reports. The practical and clinical examiner appointed from other universities preferably outside the state. Each candidate should be evaluated by each examiner independently and marks computed at the end of the examination.

The Institution follows a hybrid pattern of practical examination having both traditional clinical examination & also Objective Structured Clinical Evaluation.

**Record book:** The candidate should be given credit for his records based on the scores obtained in the record.

## **UNIVERSITY ORAL EXAMINATION**

Oral examination will be conducted by both examiners individually. Twenty marks is allotted for viva voce and that can be divided equally amongst the examiners.

## **UNIVERSITY EXAMINATIONS SUBJECTS**

### **I BDS exams will be on the following subjects**

1. General anatomy including embryology and histology
2. General human physiology
3. Bio chemistry, Nutrition and Dietetics
4. Dental anatomy, embryology and oral histology

### **II BDS exams will be on the following subjects**

1. General pathology
2. General microbiology
3. Dental material
4. General and dental pharmacology and therapeutics
5. Preclinical conservative – only practical and viva voce
6. Preclinical prosthodontics – only practical and viva voce

### **III BDS exams will be on the following subjects**

1. General medicine
2. General surgery
3. Oral and Maxillofacial pathology and Oral microbiology

### **IV BDS exams will be on the following subjects**

1. Public Health dentistry
2. Periodontology
3. Orthodontics and Dentofacial orthopedics
4. Oral Medicine and Radiology
5. Oral & Maxillofacial Surgery
6. Conservative dentistry and endodontics
7. Prosthodontics and crown & Bridge
8. Pediatric and Preventive Dentistry

## MARKS DISTRIBUTION IN EXAMINATION SUBJECTS:

Each subject shall have a maximum of 200 marks.

Theory : 100

Practical / Clinical : 100

### *University examinations that include theory and Practicals / clinicals*

<b>THEORY</b>	Internal assessment	10 marks
	Written exam	70 marks
	Viva voce	20 marks
	<b>Total</b>	<b>100 marks</b>
<b>PRACTICALS / CLINICALS</b>	Internal assessment	10 marks
	Practicals/ clinicals & OSCE / OSPE	90 marks
	<b>Total</b>	<b>100 marks</b>

Practical and viva only in University examination (Pre-clinical Prosthodontia and pre-clinical Conservative Dentistry examinations)

Each subject shall have a maximum of 100 marks.

Internal assessment	20 marks
Practicals	60 marks
Viva voce	20 marks
<b>Total</b>	<b>100 marks</b>

## PASS/ FAIL CRITERIA IN UNIVERSITY EXAMINATIONS

For declaration of pass in a subject, a candidate shall secure 50% marks in the University examination both in Theory and Practical/Clinical examinations separately, as stipulated below:

1. For pass in Theory, a candidate shall secure 50% marks in aggregate in University theory examination i.e. marks obtained in University written examination, viva voce examination and internal assessment (theory) combined together i.e. fifty out of One hundred marks.
2. In the University Practical/clinical examination, a candidate shall secure 50% marks in aggregate i.e. Practical /Clinical and Internal Assessment combined together i.e. 50/100 marks.
3. In case of pre-clinical Prosthetic Dentistry and Pre-clinical Conservative Dentistry in II BDS, where there is no written examination, minimum for pass is 50% of marks in Practical and Viva voce combined together in University Examination including Internal Assessment i.e. 50/100 marks

4. Successful candidates who obtain 65% of the total marks or more shall be declared to have passed the examination in First Class. Other successful candidates will be placed in Second Class. A candidate who obtains 75% and above is eligible for Distinction. Only those candidates who pass the whole examination in the first attempt will be eligible for distinction or class. Any student who fails in one subject in an examination is permitted to go to the next higher class and appear for the said subject and complete it successfully before he is permitted to appear for the next higher examination.
5. Any student who fails in more than one subject in an examination will not be permitted to go to the next higher class until he completes it successfully. However they should continue to attend the classes of the same year to gain adequate attendance percentage and attend all the internal assessment exams that are conducted regularly, to improve upon their previous internal assessment marks.
6. **Moderation:** Moderation process will award only up to 5 marks to candidates who fail only in one subject, provided they have appeared in exams for all the subjects in that year.
7. **Re-Totaling & Re-Evaluation:** Candidates can apply for Re-totalling and Re-evaluation of the theory paper after paying the stipulated fee within the prescribed time as determined by the university norms.

## **PROGRAM EDUCATIONAL OBJECTIVES**

**At the end of the Dental Undergraduate Programme the student is expected to be a competent practitioner who is**

**PEO1.** Able to systematically diagnose and plan treatment for diseases of oral cavity and head & neck with systemic considerations and carry out the treatment with expected *competency* with patient centered approach

**PEO2.** Able to deliver preventive treatment and counseling to patients who are at risk of developing diseases affecting the tooth associated structures of head and neck

**PEO3.** Is a community oral health educator & participates in the rural health care delivery programmes existing in the country & also participate in the implementation of the National Oral Health Program.

**PEO4.** Is involved to practice evidence based dentistry, participate in dental research and contribute to the scientific community at large, develop continuous learning habit, in an aim to improve the standards of care to the society.

**PEO 5.** Provide a holistic care to the patient with utmost care including high standards of professionalism, ethics, demonstrate interdisciplinary and inter professional teamwork with good communication skills

**Competent** – One who exhibits behaviour of critical thinking, demonstrates high standards of patient care through quality delivery of treatment, interpersonal and communication skills, professionalism, maintenance of oral health and practice management skills.

## **PROGRAM OUTCOME (PO)**

**PO 1.** Ability to diagnose using routine clinical work up and appropriate investigations and referral, plan preventive, interceptive and therapeutic treatment for common diseases and conditions of teeth and oral cavity including carious lesions, premalignant lesions, developing malocclusions, growth and developmental disorders using patient centered approach

**PO 2.** Ability to effectively motivate the public towards good oral hygiene practices, educate them to follow oral hygiene measures and to abstain from habits that could prove detrimental to the health of the dental and oral tissues.

**PO 3.** Ability to routinely update state of art developments with regard to materials, techniques and instrumentation and be able to perform on patients with standards of care.

**PO 4.** Ability to prescribe the appropriate pain killers, antibiotics and other appropriate drugs for common infections, diseases or conditions of the oral cavity orally or by other routes like subcutaneous, intramuscular or intravenous wherever appropriate.

**PO 5.** Ability to deliver treatment to patients who are children, geriatric or with special needs or disabilities with utmost concern with sound underlying principles governing the Behavioral management of the general and special population.

**PO 6.** Ability to carry out a holistic integrated dental care through preventive, restorative, procedures, following optimal sterilisation disinfection and waste management protocols with high standards of professionalism and ethics.

**PO7.** Ability to assess the outcomes to the prescribed objectives and optimal satisfaction of the patient,

**PO 8.** Ability to perform extractions, minor oral surgical, preventive and restorative procedures and trauma care under local anesthesia.

**PO 9.** Ability to identify common medical emergencies in dental office like bleeding, syncope, seizure, hypoglycemic episode, hyperventilation and anaphylaxis, to manage the same within the scope of a dental surgeon and also realize the need for early medical intervention.

**PO 10.** Ability to realize the importance of laboratory support and be able to guide the technicians involved in fabrication of restoration and replacements.

**PO 11.** Ability to identify the community needs in prevention of a dental or oral disease and to carry out an action plan for prevention or management of the same which should be aligned with national and global objectives of health care [oral/general] and prevention.

**PO 12.** Ability to perform simple research for assessment of demographical status, incidence or prevalence of a disease or condition and be able to correlate the pattern with national and global scenario.

# **I YEAR SYLLABUS**



## **GENERAL HUMAN ANATOMY INCLUDING EMBRYOLOGY, OSTEOLOGY AND HISTOLOGY**

Number of hours prescribed by DCI		
Theory hours	Practicals hours	Total
100	175	275

### **GOAL**

The students should gain the knowledge and insight into, the functional anatomy of the normal human head and neck, functional histology and an appreciation of the genetic basis of inheritance and disease, and the embryological development of clinically important structures. So that relevant anatomical & scientific foundations are laid down for the clinical years of the BDS course.

### **OBJECTIVES**

#### **KNOWLEDGE**

- Know the normal disposition of the structures in the body while clinically examining a patient and while conducting clinical procedures.
- Know the anatomical basis of disease and injury.
- Know the microscopic structure of the various tissues, a pre-requisite for understanding of the disease processes.
- Know the nervous system to locate the site of lesions according to the sensory and or motor deficits encountered.
- Have an idea about the basis of abnormal development, critical stages of development, effects of teratogens, genetic mutations and environmental hazards.
- Know the sectional anatomy of head neck and brain to read the features in radiographs and pictures taken by modern imaging techniques.
- Know the anatomy of cardio-pulmonary resuscitation

#### **SKILLS**

- To locate various structures of the body and to mark the topography of the living anatomy.
- To identify various tissues under microscope.
- To identify the features in radiographs and modern imaging techniques.
- To detect various congenital abnormalities.

**SYLLABUS**

Sl No.	Topic	System Weightage	Number of hours	Must know(M) Desirable to know(D) Nice to know(N)
<b>1.</b>	<b>GROSS ANATOMY - HEAD REGION</b>			
	Scalp	1%	1	M
	Face- Muscles of face, blood supply & nerve supply of face	2%	2	M
	Lacrimal apparatus	1%	1	M
	Parotid region	1%	1	M
	Temporal & Infratemporal region – Muscles of mastication, Maxillary artery, Mandibular nerve, Temporomandibular joint, Otic ganglion	1%	1	M
	Pterygopalatine fossa – Maxillary nerve, Pterygopalatine ganglion	1%	1	M
	Cranial cavity- Dural folds & Dural venous sinuses	1%	1	M
	Orbit- Boundaries of bony orbit and its contents, Extraocular muscles, Ophthalmic artery, ophthalmic division of trigeminal nerve, ciliary ganglion.	1%	1	M
	Nasal cavity & paranasal air sinuses- Lateral wall of nose, medial wall of nose, paranasal air sinuses	1%	1	M
	Soft palate- Muscles of soft palate with nerve supply & action.	1%	1	M
	Tongue- Parts, Muscles of tongue with nerve supply, lymphatic drainage & applied anatomy.	1%	1	M
	Ear – Middle ear, tympanic membrane, Eustachian tube	1%	1	M
	Eyeball – Structure of the eyeball	1%	1	M

<b>2.</b>	<b>NEUROANATOMY</b>			
	Spinal cord - External features, tracts, blood supply.  Cerebral cortex- Sulci, gyrus and functional areas on superolateral surface of cerebral hemisphere, white matter of cerebrum,			
	Brain stem- cross section of medulla, pons and midbrain Ventricles and CSF circulation Blood supply of cerebrum and circle of willis Cerebellum- structure & function Cranial nerves- V, VII, IX, X, XI, XII	5%	5 hrs	M
<b>3.</b>	<b>SYSTEMIC EMBRYOLOGY</b>			
	Pharyngeal apparatus and its derivatives Development of Face and its anomalies Development of palate & its anomalies Development of salivary glands. Development of pituitary gland Development of Tongue & its anomalies Development of Thyroid gland & its anomalies	5%	5 hrs	M
<b>4.</b>	<b>SYSTEMIC HISTOLOGY</b>			
	Gastrointestinal system- Histology of salivary glands, tongue, stomach, small and large intestine, appendix, liver, gall bladder & pancreas Respiratory system- histology of trachea & lungs. Urinary system- Histology of urinary bladder, kidney, ureter. Reproductive system – Histology of Testis & Ovary Endocrine system- Histology of pituitary gland, thyroid & parathyroid gland, suprarenal gland.	5%	7 hrs	M

**SYLLABUS**

Sl No.	Topic	System Weightage	Number of hours	Must know(M) Desirable to know(D) Nice to know(N)
<b>5.</b>	<b>GROSS ANATOMY - NECK REGION</b>			
	Triangles of neck Anterior triangle- boundaries and contents Posterior triangle- boundaries and contents Muscles of Neck & Suboccipital triangle	4%	4 hrs	M
	Deep fascia of neck Investing layer, pretracheal fascia, prevertebral fascia, carotid sheath.	2%	2 hrs	M
	Blood vessels of neck External and internal carotid artery External and internal jugular vein, Subclavian artery and its branches	4%	2 hrs	M
	Submandibular region	2%	2 hrs	M
	Deep structures of neck Thyroid gland Trachea and oesophagus Sympathetic chain	2%	1 hrs	M
	Pharynx	2%	2 hrs	M
	Larynx	2%	2 hrs	M
	Cervical plexus of nerves, joints of neck	1%	1 hrs	M
<b>6.</b>	<b>GENERAL ANATOMY</b>			
	Classification of bone with examples, Parts of a young long bone, blood supply of bone, Classification of joints with example Characteristic feature and classification of synovial joints Classification of muscles with example Vascular system- types of anastomosis, collateral circulation, end arteries			

	Lymphatic system- lymphatic vessels, lymphoid organs Nervous system-Classification of neurons, spinal nerves, neuroglial cells.	5%	5 hrs	M
7.	<b>GENERAL EMBRYOLOGY</b>			
	Spermatogenesis, oogenesis, fertilization, implantation, germ layer formation, blastocyst, amniotic cavity, yolk sac, primitive streak, notochord, somites, neural crest cells, placenta, derivatives of ectoderm, endoderm, mesoderm.	5%	5 hrs	M
8.	<b>GENERAL HISTOLOGY</b>			
	Epithelial tissue- simple and compound Connective tissue-cells, fibres Cartilage-hyaline, white fibrocartilage, elastic cartilage Bone- spongy and compact bone TS & LS Muscular tissue-Skeletal, cardiac & smooth muscle. Nervous tissue- peripheral nerve & ganglia Blood vessels- artery and vein Lymphoid tissue- thymus, palatine tonsil, spleen, lymph node Skin- thick and thin	5%	5 hrs	M
9.	<b>GENETICS</b>			
	Chromosomes & its disorders, Down's syndrome, Turner's syndrome, Klinefelter's syndrome, karyotyping, Barr body, gene mutation, genetic counseling, modes of inheritance.	2%	2 hrs	M

**Practicals: no: of hours = 175**

S. No	Practical exercises	Hours	Observe/ assist/ perform
1.	Introduction- Anatomical position, body planes, terms, bones, joints, muscles, blood vessels, nerves, lymph vessels.	10 hours	Observe

**General Human Anatomy Including Embryology, Osteology and Histology**

2.	Osteology of head & neck- Exterior of skull, interior of skull, cervical vertebra, individual bones- mandible, maxilla, frontal bone, temporal bone, parietal bone, occipital bone	20 hours	observe
3	Surface anatomy	10 hours	perform
4	Soft tissue dissection	60 hours	perform
5	Demonstration of general & systemic histology slides	60hours	perform
6	Demonstration of embryology models	15hours	observe

**Scheme of Examination:****1. Theory: 70 Marks**

Part I : 20 MCQs ( 20 X 0.5 = 10 Marks)

Part II :

Section A : 1 LAQ (1 X 10 = 10 Marks)

3 SAQs (3 X 5 = 15 Marks)

Section B : 1 LAQ (1 X 10 = 10 Marks)

3 SAQs (3 X 5 = 15 Marks)

Section C : 5 VSAQs (5 X 2 = 10 Marks)

**Theory Internal assessment: 10 marks**

**Viva voce: 20 marks**

**Total = 100 Marks**

**2. Practical examination: 90 Marks****1) Traditional = 40 marks****a) Histology = 20 marks**

One general histology slide discussion-10marks

One systemic histology slide discussion- 10marks

**b) Dissection = 20marks**

One block discussion of head region – 10marks

One block discussion of neck region - 10 marks

**2) OSPE = 40 marks**

10 stations X 4marks each = 40 marks

**3) Records= 10 marks**

**Internal assessment: 10 marks**

**Total= 90+10=100 marks**

## BLUEPRINT OF THEORY PAPER

**SECTION A:** Gross anatomy of Head region, Neuroanatomy, Systemic histology, systemic embryology.

**SECTION B:** Gross anatomy of neck region, General anatomy, General embryology, General histology, Genetics.

MCQs and VSAQs – Combination of both section A & Section B and Genetics

### Part I- MCQs:

S.No	TOPICS	MCQs
1	Gross anatomy of head region	5
2	Gross anatomy of neck region	5
3	General anatomy	1
4	General embryology	2
5	systemic embryology	2
6	General histology	2
7	Systemic histology	2
8	Genetics.	1

### SECTION A:

S.No	TOPICS	LAQ	SAQ
1	Gross Anatomy- Head region	1	
2	Central nervous system		1
3	Systemic histology		1
4	Systemic embryology		1

### SECTION B:

S. No	TOPICS	LAQ	SAQ
1	Gross anatomy- Neck region	1	
2	General Anatomy		1
3	General embryology		1
4	General histology		1
5	Genetics		

### SECTION C

Five VSAQ's (5x2=10)

Head region 1+neck region 1+ embryology 1+genetics 1+ histology 1

### **Recommended books**

1. SNELL(RichardS) Clinical Anatomy  
for Medical Students, Ed.5, Little Brown & company, Boston.
2. R.J. LAST'S Anatomy – McMinn, 9th edition.
3. ROMANES(G.J.) Cunningham Manual of Practical  
Anatomy: Head & Neck & Brain Ed. 15 Vol. III, Oxford Medical publication.
4. WHEATER, BURKITT & DANIELS, Functional Histology, Ed.2, Churchill Livingstone.
5. SADLER, LANGMAN'S, Medical Embryology, Ed. 6.
6. JAMES E ANDERSON, Grant's Atlas of Anatomy. Williams & Wilkins.
7. WILLIAMS, Gray's Anatomy, Ed.38., Churchill Livingstone.
8. EMERY, Medical Genetics.



**UNIVERSITY MODEL QUESTION PAPER I BDS (2017-2018)**  
**ANATOMY**

**Time: 3 hrs**

**Max. Marks: 70**

**Instructions: Attempt all the questions**  
**Illustrate your answers with suitable diagrams**

**PART I**

**MODEL MULTIPLE CHOICE QUESTIONS**

**(20X0.5=10)**

- 1) Which of the following layers of scalp is considered as dangerous layer?
  - A) Subaponeurotic layer
  - B) Skin
  - C) Superficial fascia
  - D) Galeaaponeurotica
- 2) Following extraocular muscles are supplied by oculomotor nerve EXCEPT
  - A) Superior rectus
  - B) Superior oblique
  - C) Inferior rectus
  - D) Inferior oblique
- 3) Which nerve carries postganglionic parasympathetic fibres to Parotid gland?
  - A) Greater petrosal nerve
  - B) Greater auricular nerve
  - C) Auriculotemporal nerve
  - D) Lesser petrosal nerve
- 4) The pain caused by the drilling of a mandibular molar tooth is conveyed through.
  - A) Lingual
  - B) Mylohyoid
  - C) Inferior alveolar
  - D) Buccal
- 5) The cell bodies of taste fibres from the anterior two-thirds of the tongue are located in the
  - A) Geniculate ganglion
  - B) Pterygopalatine ganglion
  - C) Submandibular ganglion
  - D) Trigeminal ganglion
- 6) The communication between pharynx and nasal cavity is known as the:
  - A) Additus
  - B) Auditory tube
  - C) Choanae
  - D) Piriform recess

- 7) The muscle most commonly responsible for the abduction of the vocal fold is  
A) Posterior cricoarytenoid  
B) Lateral cricoarytenoid  
C) Cricothyroid  
D) Thyroarytenoid
- 8) Following muscles are innervated by ansacervicalis EXCEPT  
A) Omohyoids  
B) Sternohyoid  
C) Sternothyroid  
D) Stylohyoid
- 9) A thyroid mass usually moves with swallowing because the thyroid gland is enclosed by which  
of the following fascia?  
A) Pretracheal fascia  
B) Prevertebral fascia  
C) Carotid sheath  
D) Buccopharyngeal fascia
- 10) Following are the branches of external carotid artery EXCEPT  
A) Facial  
B) Middle meningeal  
C) Ascending pharyngeal  
D) Lingual
- 11) The normal site of Fertilisation is  
A) Uterus  
B) Ovary  
C) Pelvic cavity  
D) Ampulla of the uterine tube
- 12) The remnant of the notochord in adult persists as  
A) Vertebral column  
B) Spinal cord  
C) Nucleus pulposus of the intervertebral disc  
D) Ligamentum flavum
- 13) Palatine tonsil is developed from?  
A) First pharyngeal pouch  
B) Second pharyngeal pouch  
C) Third pharyngeal pouch  
D) Fourth pharyngeal pouch
- 14) Following structures are the derivatives of first pharyngeal arch EXCEPT  
A) Malleus  
B) Incus  
C) Styloid process  
D) Sphenomandibular ligament
- 15) Following are the examples of X-linked recessive traits EXCEPT  
A) Vitamin D resistant rickets  
B) Hemophilia  
C) Colour blindness  
D) Duchenne muscular dystrophy

- 16) Hassal's corpuscles are characteristic of  
A) Lymphnode  
B) Thymus  
C) Spleen  
D) Palatine tonsil
- 17) Lining epithelium of urinary bladder is  
A) Transitional epithelium  
B) Simple cuboidal  
C) Simple columnar  
D) Pseudostratified
- 18) Payer's patches are characteristically seen in  
A) Stomach  
B) Duodenum  
C) Appendix  
D) Ileum
- 19) Parafollicular cells are seen in  
A) Suprarenal gland  
B) Pituitary gland  
C) Thyroid gland  
D) Pineal gland
- 20) Following are fibrous joint **EXCEPT**  
A) Sutures  
B) Gomphosis  
C) Middle radioulnar joint  
D) Xiphisternal joint  
Ans- D

**PART - II**

**Section - A**

**LONG ANSWER QUESTION:** (1 X 10 = 10)

- 1) Describe Cavernous sinus under the following headings (2+3+3+2)
- A) Formation and relations
  - B) Tributaries
  - C) Communications
  - D) Applied aspects

**SHORT ANSWER QUESTIONS:** (3x5=15)

- 2) Discuss the blood supply of superolateral surface of cerebrum
- 3) Discuss the development of face. Add a note on congenital anomalies.
- 4) Draw a labeled diagram showing the histological features of circumvallate papillae of tongue

**Section B**

**LONG ANSWER QUESTION** (1 X 10 = 10)

- 5) Describe thyroid gland under the following headings (1+4+3+2)
- A) Location
  - B) Parts and relations
  - C) Blood supply
  - D) Applied anatomy

**SHORT ANSWER QUESTIONS:** (3x5=15)

- 6) State the parts of a long bone. Discuss its blood supply.
- 7) Draw a labeled diagram showing the histological features of Lymph node.
- 8) Define implantation. State the normal and abnormal sites of implantation.

**Section C**

**VERY SHORT ANSWER QUESTION** (5x2=10)

- 9. Enumerate extraocular muscles and give their nerve supply. State the action of superior oblique muscle.
- 10. State the formation and contents of carotid sheath.
- 11. Enumerate the branches of third part of maxillary artery.
- 12. State the clinical importance of piriform fossa.
- 13. State any four clinical features of Down's syndrome.

**GENERAL PHYSIOLOGY**

<b>Human Physiology Number of teaching hours as per DCI</b>		
Theory	Practical	Total
120	60	180

**GOAL**

The broad goal of the teaching undergraduate students in Physiology aims at providing the student comprehensive knowledge of the normal functions of the organ systems of the body to facilitate an understanding of the physiological basis of health and disease

**OBJECTIVES****KNOWLEDGE**

- Explain the normal functioning of all the organ systems and their interactions for well
- Co-ordinated total body function.
- Assess the relative contribution of each organ system towards the maintenance of the milieu interior.
- List the physiological principles underlying the pathogenesis and treatment of disease

**Skills**

- At the end of the course, the student shall be able to:
- Conduct experiments designed for the study of physiological phenomena.
- Interpreted experimental and investigative data
- Distinguish between normal and abnormal data derived as a result of tests which he/she has performed and observed in the laboratory

**I year BDS Syllabus****Theory teaching hours: 120**

Sl No.	Topic	System Weightage	Number of hours	Must know (M) / Desirable to know (D) / Nice to know (N)
GENERAL PHYSIOLOGY				
1.	Structure and functions of cell	4%	1	M
2.	Homeostasis		1	M
3.	Transport across cell membrane		2	M
4.	Membrane potential, Action potential (Nerve)		1	M
BLOOD AND BODY FLUIDS				
1	Body fluids: Composition and distribution	11-15%	0.5	D
2	Composition and functions of blood		0.5	M
3	Plasma proteins – Types and functions		0.5	M
4	Erythrocytes – Erythropoiesis, Morphology, functions and variations		1	M
5	Blood indices, Hemoglobin - Jaundice		1	M
6	Anemia		1	M
7	Leukocytes – Classification, functions, reticulo endothelial system		1	M
8	Immunity		2	M
9	Platelets – Morphology and functions		0.5	D
10	Haemostasis, anticoagulants		2	M
11	Blood groups: ABO & Rh system, indications and dangers of blood transfusion		1	M
12	Tissue fluids & lymph, Edema		0.5	M
NERVE MUSCLE PHYSIOLOGY				
1	Nerve- structure, classification of nerve fibres	4 %	1	D
2	Skeletal muscle: structure, Sarcotubular system		1	M
3	Neuromuscular junction: Structure & transmission of impulse, Myasthenia gravis & Rigor mortis		1	M

GASTROINTESTINAL SYSTEM				
1	General structure & innervation of GIT, BER, MMC, peristalsis		1	M
2	Salivary gland secretion: composition, functions & regulation	8%	1	M
3	Mastication & deglutition		0.5	M
4	Gastric secretion- Composition, functions and Regulation.		1	M
5	Gastric movements		0.5	D
6	Pancreatic secretion: composition, functions & regulation		1	M
7	Bile: composition, functions & regulation		1	N
8	Small intestine & Large intestine: functions & movements, Defecation			2
ENDOCRINE PHYSIOLOGY				
1	Endocrine glands, Classification of hormones, mechanism of hormone action, Second messengers	15 %	1	D
2	Anterior pituitary: hormones, functions, regulation and its disorders		1.5	M
3	Posterior pituitary- hormones, functions, regulation & Disorders(diabetes insipidus)		1	M
4	Thyroid and parathyroid- hormones, functions, regulation and its disorders		1	M
5	Calcium homeostasis		1	M
6	Endocrine pancreas- hormones, functions, regulation and its disorders		1	M
7	Adrenal cortex- hormones, functions, regulation and its disorders		1	M
8	Adrenal medulla- hormones, functions and its disorders		1	M
REPRODUCTION				
1.	Male reproductive system: Spermatogenesis, Blood testis barrier, Functions of testosterone	8 %	1	M
2.	Female reproductive system: Oogenesis, Menstrual cycle, functions of estrogens and progesterone		2	M
3.	Pregnancy: Maternal changes		1	M
4	Contraception		1	M

CARDIOVASCULAR SYSTEM				
1	Heart: Origin and spread of cardiac impulse, properties of cardiac muscle	11-15%	1	M
2	Normal ECG		1	M
3	Cardiac cycle: definition, Phases, Pressure & volume changes in atria and ventricles, JVP		1.5	M
4	Heart sounds: causes, characteristics, murmurs		0.5	D
5	Heart rate: normal value, factors affecting and its regulation		1	M
6	Cardiac output: definition, normal range, physiological variations, determination, (principles underlying the methods only), its regulation		1.5	M
7	Arterial blood pressure: definitions, normal values, physiological variations, factors maintaining blood pressure, determinants, regulation and measurement, bain bridge reflex, hypertension.		2	M
8	Shock: physiological basis of signs and symptoms		1	D
9	Coronary circulation		0.5	D
10	Cardio-vascular changes during exercise and posture		1	M
RESPIRATORY SYSTEM				
1	Functional anatomy of respiratory system, Non respiratory functions of respiratory system	8 %	1	M
2	Mechanics of breathing, pressure changes during ventilation		1	M
3	Lung volumes and capacities; definition, normal values		1	M
4	Pressure volume relationship(compliance); work done during breathing: airway resistance		1	M
5	Alveolar surface tension (surfactant, hyaline membrane disease);		0.5	D
6	alveolar ventilation: Dead space, v/p ratio, diffusion capacity of lungs		1	M
7	Oxygen transport: oxygen –hemoglobin dissociation curve; Carbon di oxide transport		1.5	M
8	Regulation of respiration: neural & Chemical regulation		2	M
9	Hypoxia: types and effects		1	M



RENAL SYSTEM				
1	Functions of kidneys. Nephron: structure, types; functions	8 %	1	M
2	Juxtaglomerular apparatus; structure & functions		1	M
3	Renal bloodflow: normal value, factors affecting and regulating RBF		1	M
4	GFR: definition, Normal value, factors affecting and regulating it		1	M
5	Renal tubular function: reabsorption (Sodium, Chloride, Glucose, Water) and secretion		1	M
6	Mechanism of concentration and dilution of urine		1	M
7	Micturition		1	M
CENTRAL NERVOUS SYSTEM				
1	Functional organization of CNS and spinal cord	12 %	1	D
2	Synapse - structure & its function		1	D
3	Sensory receptors – types & functions		1	D
4	Pathways for fine touch, pressure, proprioception, and vibration		1	M
5	Physiology of pain		2	M
6	Pyramidal tracts: origin, course, termination and functions, UMN & LMN		1.5	M
7	Functions of cerebellum, basal ganglia, thalamus, and hypothalamus Regulation of body temperature		2	M
8	Disorders of cerebellum and basal ganglia		0.5	D
9	Cerebral cortex: areas & functions		1	N
10	Autonomic nervous system: organization & functions		1	N
SPECIAL SENSES				
1	Vision: functional anatomy of eyeball	4%	0.5	D
2	Visual pathway		0.5	M
3	Refractive errors: myopia, hypermetropia, presbyopia& astigmatism.		1	M
4	Audition: anatomy & functions of outer, middle and inner ear, organ of corti, mechanism of hearing		1	M
5	Auditory pathways & Deafness- types & tests of hearing		1	M
6	Taste: tastebuds, primary taste sensation, pathwayfor taste sensation		1	M
7	Smell: receptors, olfactory pathways		1	M

**Practical teaching hours: 60**

S.No	Practicals	Perform / Demonstration
1	Study of Microscopy	Demonstration
2	Study of Hemocytometry	Demonstration
3	Determination of RBC count	Perform
4	Determination of WBC count	Perform
5	Determination of hemoglobin concentration	Perform
6	Differential leucocyte count	Perform
7	Determination of blood group	Perform
8	Determination of bleeding time & clotting time	Perform
9	Examination of radial pulse	Perform
10	Determination of pulse & BP	Perform
11	Examination of CVS	Demonstration
12	Examination of RS	Demonstration
13	Examination of CNS	Demonstration

**Scheme of examination:**

**1. Theory : 70 Marks**

Part I : 20 MCQs ( 20 X 0.5 = 10 Marks)

Part II :

Section A : 1 LAQ (1 X 10 = 10 Marks)

3 SAQs (3 X 5 = 15 Marks)

Section B : 1 LAQ (1 X 10 = 10 Marks)

3 SAQs (3 X 5 = 15 Marks)

Section C : 5 VSAQs (5 X 2 = 10 Marks)

**Theory Internal assessment: 10 marks**

**Viva voce: 20 marks**

**Total = 100 Marks**

**2. Practical examination: 90 Marks**

**Major experiment** 25 marks

**Minor experiment** 15 marks

**OSPE** 50 marks

**Internal assessment** 10 marks

**TOTAL** 100 marks

**Blueprint of theory paper:**

<b>Section A</b>	General physiology, Blood, Nerve-muscle physiology, Renal system, Cardiovascular system and Respiratory system	25 marks
<b>Section B</b>	Gastro intestinal tract, Endocrinology, Reproduction, Central nervous system, Special senses	25 marks
<b>Section C &amp; MCQs</b>	All the systems	20 marks

**PART I:**

<b>Chapters</b>	<b>MCQs</b>
General physiology	2
Blood	1
Nerve-muscle	2
Renal system	2
Cardiovascular system	2
Respiratory system	2
Gastrointestinal	2
Endocrinology	1
Reproduction	2
Central nervous system	2
Special senses	2

**PART II:****Section A****Matrix I: If LAQ is from blood**

<b>Chapters</b>	<b>LAQ</b>	<b>SAQ</b>	<b>VSAQ</b>
General physiology			1
Blood	1		
Nerve-muscle			1
Renal system		1	
Cardiovascular system		1	1
Respiratory system		1	

**General Physiology****Matrix II : If LAQ is from CVS**

Chapters	LAQ	SAQ	VSAQ
General physiology			1
Blood		1	1
Nerve-muscle			1
Renal system		1	
Cardiovascular system	1		
Respiratory system		1	

**Section B****Matrix I : If LAQ is from Endocrinology**

Chapters	LAQ	SAQ	VSAQ
Gastrointestinal		1	
Endocrinology	1		
Reproduction		1	
Central nervous system		1	1
Special senses			1
Respiratory system			

**Matrix II: If LAQ is from Central nervous system**

Chapters	LAQ	SAQ	VSAQ
Gastrointestinal		1	
Endocrinology		1	1
Reproduction		1	
Central nervous system	1		
Special senses			1

**Recommended Books:**

<b>THEORY</b>	1. Human physiology for BDS. 5th edition-Dr AK Jain 2. Fundamentals of physiology-Bijlani
<b>PRACTICAL</b>	Manual of practical physiology for BDS by AK Jain

**UNIVERSITY MODEL QUESTION  
PAPER I BDS EXAMINATION  
PHYSIOLOGY**

**Time-3hrs**

**MAX MARKS-70**

**Instructions: Attempt all the questions  
Illustrate your answers with suitable diagrams**

**PART I**

**MODEL MULTIPLE CHOICE QUESTIONS**

**(20X0.5=10)**

1. The resting membrane potential of nerve is \_\_\_\_\_ mV
  - A. - 60
  - B. - 70
  - C. - 80
  - D. - 90
2. Which of the following is regulated by positive feedback mechanism?
  - A. Temperature
  - B. Blood pressure
  - C. Thyroid hormones
  - D. Parturition
3. Hemophilia is due to deficiency of
  - A. Factor II
  - B. Factor V
  - C. Factor VIII
  - D. Factor X
4. Action potential of a nerve originates at
  - A. Dendrites
  - B. Soma
  - C. Axon hillock
  - D. Synaptic knob
5. Which of the following in skeletal muscle is a contractile protein
  - A. Actin
  - B. Troponin
  - C. Tropomyosin
  - D. Dystropin
6. Which among the following substance is completely reabsorbed by renal tubules
  - A. Glucose
  - B. Sodium
  - C. Urea
  - D. Ammonia
7. Diabetes insipidus is due to deficiency of
  - A. Insulin
  - B. Glucagon
  - C. Vasopressin
  - D. Oxytocin

### General Physiology

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8. P wave of ECG is due to
  - A. Atrial depolarization
  - B. Atrial repolarization
  - C. Ventricular depolarization
  - D. Ventricular repolarization
9. First heart sound is due to
  - A. Closure of semilunar valves
  - B. Opening of semilunar valves
  - C. Closure of atrio-ventricular valves
  - D. Opening of atrio-ventricular valves
10. Partial pressure of oxygen in atrial blood is around \_\_\_\_\_ mmHg
  - A. 25 – 27
  - B. 55 – 57
  - C. 75 – 77
  - D. 95 – 97
11. Which of the following factor has direct stimulatory effect on medullary respiratory centre
  - A. Changes in arterial  $\text{PCO}_2$
  - B. Changes in arterial  $\text{PO}_2$
  - C. Changes in arterial pH
  - D. Changes in arterial pressure
12. Which of the following inhibits gastric secretion
  - A. Gastrin
  - B. Acetyl choline
  - C. Histamin
  - D. Prostaglandin
13. Which of following movement helps in mixing chyme with gastro intestinal secretion
  - A. Peristalsis
  - B. Reverse peristalsis
  - C. Segmentation
  - D. Haustral contraction
14. Cretinism is due to deficiency of
  - A. Calcitonin
  - B. Growth hormone
  - C. Thyroid hormones
  - D. Glucocorticoids
15. Optimal temperature for spermatogenesis is
  - A.  $28^\circ\text{C}$
  - B.  $32^\circ\text{C}$
  - C.  $37^\circ\text{C}$
  - D.  $40^\circ\text{C}$
16. Mechanism of action of intra uterine contraceptive devices is
  - A. Acts as barrier to sperm
  - B. Prevents implantation of ovum
  - C. Prevents ovulation
  - D. Increase uterine contraction

17. Which of the following tract carries temperature sensation?
  - A. Dorsal column tract
  - B. Lateral spinothalamic tract
  - C. Anterior spinothalamic tract
  - D. Cortico spinal tract
18. Parkinsonism is due to lesion in
  - A. Cerebellum
  - B. Basal ganglia
  - C. Thalamus
  - D. Hypothalamus
19. Visual acuity is greatest at
  - A. Optic disk
  - B. Fovea centralis
  - C. Lens
  - D. Cornea
20. Primary auditory area is
  - A. 37
  - B. 41
  - C. 43
  - D. 47



**PART - II**  
**Section A**

**LONG ANSWER QUESTION:** **1 X 10 = 10**

1. Define erythropoiesis. Briefly describe the stages of erythropoiesis.  
List the factors regulating it. (2 + 4 + 4)

**SHORT ANSWER QUESTIONS** **3 X 5 = 15**

2. Draw and explain the structure and function of Juxtra Glomerular apparatus.
3. Define cardiac output. Write its normal range. List the factors affecting it.
4. Draw oxygen dissociation curve. List the factors shifting the curve to right and left.

**Section B:**

**LONG ANSWER QUESTION** **1 X 10 = 10**

5. Name the hormones secreted by endocrine pancreas. Briefly describe the actions of insulin.  
List the symptoms of diabetes mellitus. (2 + 5 + 3)

**SHORT ANSWER QUESTIONS** **3 X 5 = 15**

1. List the composition and function of saliva.
2. Briefly explain uterine changes during menstrual cycle.
3. Draw and describe the lateral spinothalamic tract. Mention its function.

**Section C**

**VERY SHORT ANSWER QUESTIONS** **5 X 2 = 10**

4. List any two differences between simple and facilitated diffusion.
5. Draw a schematic diagram of sarcomere in relaxed and contracted state.
6. Draw a normal lead II ECG
7. List any 4 functions of hypothalamus
8. What is myopia? How is it corrected?

**BIOCHEMISTRY**

Number of hours prescribed by DCI		
Theory hours	Practical hours	Total
70	60	130

**GOAL**

The major aim is to provide to the students in the pre- university stage and reorienting. A mere rehash should be avoided.

**OBJECTIVES****KNOWLEDGE**

The chemistry portion should strive towards providing information on the functional groups, hydrophobic and hydrophilic moieties and weak valence forces that organize macromolecules. Details on structure need not be emphasised.

**Skills**

Discussion on metabolic processes should put emphasison the overall change, interdependence and molecular turn over. While details of the steps may be given, the student should not be expected to memorise them.

An introduction to biochemical genetics and molecular biology is a must but details should be avoided. The exposure to antivitamins, antimetabolites and enzyme inhibitors at this stage, will provide a basis for the future study of medical subjects.

An overview of metabolic regulation is to be taught by covering hormonal action, second messengers and regulation of enzyme activities. Medical aspects of biochemistry should avoid describing innumerable functional tests, most of which are notinvogue. A few examples which correlate genotype change to functional changes should be adequate.

S. No	Topic	System weightage	Number of hours	Must know (M)/ Desirable to know (D)/ Nice to know (N)
1.	<i>Introduction to Biochemistry and its Scope in Dentistry</i>	1.4%	1	D
2.	<b><u>A] Chemistry of biomolecules &amp; their significance Carbohydrates :</u></b> <ul style="list-style-type: none"> <li>• Definition</li> <li>• Physiologically significant carbohydrates Mono, di and polysaccharides</li> <li>• Mucopolysaccharides – Hyaluronic acid, Chondroitin sulphate, Heparin</li> </ul>	2.9	2	M
	<b><u>B] Physiologically significant Lipids :</u></b> <ul style="list-style-type: none"> <li>• Definition and significance</li> </ul>	4.3	2	M
	<ul style="list-style-type: none"> <li>• Essential Fatty acids, eicosanoids &amp; their functions</li> </ul>			M
	<ul style="list-style-type: none"> <li>• Neutral fats and their significance</li> </ul>			D
	<ul style="list-style-type: none"> <li>• Phospholipids &amp; their functions</li> </ul>			M
	<ul style="list-style-type: none"> <li>• Cholesterol and compounds derived from it.</li> </ul>			M
	<ul style="list-style-type: none"> <li>• Lipoproteins structure, classification &amp; their functions</li> </ul>			M
	a) Micelle			D
	b) Liposomes, preparation, types & their applications			M
	<b><u>C] Proteins, amino acids immunoglobulins &amp; hemoglobin :</u></b> <b><u>(i) Amino Acids and Proteins:</u></b> Amino Acids – Classification based on essential/nonessential, metabolic fate and their nutritional importance Physiologically active peptides <ul style="list-style-type: none"> <li>• Proteins–Definition, functions, classification, structural organization</li> <li>• Plasma Proteins and their separation by electrophoresis</li> </ul> <b><u>(ii) Immunoglobulins : Structure, types &amp; functions</u></b> <b><u>(iii) Special features and organization of collagen</u></b>	7.1%	3	M

	<b><u>Enzymology</u></b>	7.1	5	M
	- Definition of enzymes, iso enzymes, Co enzymes and cofactors			M
	- Classification & properties of enzymes			M
	- Holo enzyme concept			D
	- <i>Enzyme specificity</i>			M
	- Factors influencing enzyme activity			M
	- Enzyme inhibition – types and examples			M
3.	<b><u>Biological Oxidation</u></b>	0.5%	1	M
	- Electron Transport Chain (ETC)			M
	- Oxidative Phosphorylation			M
	- Uncouplers			D
	- <i>mSignificance of brown adipose tissue</i>			M
4.	<b><u>Metabolism of carbohydrates with inborn errors of metabolism</u></b>	8.9%	6	M
	- Digestion and absorption of Carbohydrate			M
	- Glycolysis & gluconeogenesis			M
	- Citric Acid cycle			M
	- Metabolism of glycogen & glycogen storage diseases			M
	- Significance of HMP shunt			D
	- <i>Rapaport Leubering cycle</i>			D
	- <i>Significance of uronic acid pathway (not the steps involved in the pathway)</i>			M
	- Metabolism of fructose & galactose with inborn errors			M
5.	<b><u>Metabolism of lipids with inborn errors</u></b>	7.1%	5	M
	- <i>Digestion and absorption of lipids</i>			M
	- Different types of oxidation of FAs & their significance			M
	- Ketone body formation, utilization Ketoacidosis			M
	- Compounds derived from cholesterol			M
	- Lipid profile, dyslipidemia & atherosclerosis			M
	- Fatty liver & lipotropic factors			M

6.	<b><u>Metabolism of Amino acids with Inborn errors :</u></b>	8.6%	5	D
	• Digestion and absorption of Amino acids			D
	• Transamination of Amino acids			M
	• Production and fate of ammonia, Urea cycle pathway & hyper ammonemias			M
	• Compounds derived from glycine & its inborn errors of metabolism.			M
	• Compounds derived from <i>Hydroxy amino acids</i> & its inborn errors of metabolism			M
	• Compounds derived from of sulphur containing amino acids, homocysteinurias, cystinuria & cystinosis.			M
	• Polyamines, nitric oxide & their functions			D
	• Compounds derived from tryptophan & its inborn errors of metabolism			M
	• Compounds derived from phenylalanine & tyrosine, Phenylketonuria, tyrosinemias, albinism & Alkaptonuria			M
7.	• Compounds derived from branched chain amino acids & MSUD	1.4%	1	M
	• Compounds derived from <i>glutamic acid, aspartic acid, glutamine, asparagines, proline, histidine &amp; hydroxyl proline</i> & its inborn errors of metabolism			D
	• Biologically important amines & significance of			M
	<b><u>Heme metabolism</u></b>			M
	• Heme Biosynthesis			D
8.	• Regulation of heme biosynthesis	8.6%	8	M
	• Degradation of Heme			D
	• <b>Porphyrias: types biochemical defect, clinical features &amp; biochemical basis of their management</b>			M
9.	<b><u>Vitamins: (Water soluble and Fat soluble)</u></b>	10%	6	M
	• Definitions and classification of micro & macronutrients			D
	• A brief account of <i>Chemistry</i>			M
9.	• Sources, RDA, functions, deficiency manifestations, vitamin antagonists & assessment of vitamin status	10%	6	M
	<b><u>Minerals metabolism</u></b>			M
9.	• Distribution, sources, functions, requirements, absorption, metabolism, regulation & deficiency manifestation: Calcium, Iron, Iodine, Fluoride, Copper, Zinc, Magnesium, Selenium, Manganese	10%	6	M
				M

10.	<ul style="list-style-type: none"> <li>Fatty acid synthesis</li> <li>Lipo protein metabolism</li> <li>Bio synthesis of cholesterol</li> </ul>			
11.	<b><u>Acid-Base Balance</u></b> <ul style="list-style-type: none"> <li>Buffers of the body fluids</li> <li>Respiratory regulation of pH</li> <li>Renal regulation of pH</li> <li><i>Causes of acid base disorders</i></li> </ul>	2%	2	M D
12.	<b><u>Organ function Test</u></b> <ul style="list-style-type: none"> <li>Hepato-biliary function test</li> <li>Renal function test</li> <li>Thyroid function tests</li> </ul>	5%	4	M
13.	<b><u>Water &amp; electrolyte balance</u></b> <ul style="list-style-type: none"> <li>Reference ranges of Sodium, Potassium, chloride, disorders associated with electrolyte imbalance.</li> </ul>	1%	1	M
14.	<b><u>Nucleic Acids : Chemistry &amp; metabolism</u></b> <ul style="list-style-type: none"> <li><i>Functions of Purines &amp; pyrimidines</i></li> <li>Structure &amp; Types of Deoxyribonucleic acid (DNA) &amp; Ribonucleic Acid (RNA)</li> <li>List the synthetic analogue of purine &amp; pyrimidine bases &amp; their applications.</li> <li>Salvage pathway of purines &amp; pyrimidine with inborn errors of metabolism</li> </ul>	2%	2	M
15.	<b><u>Cell and Molecular Biology</u></b> <ul style="list-style-type: none"> <li>Cell, sub cellular organelles, bio-membranes and Membrane Transport system</li> </ul>	5.7%	8	M
	<ul style="list-style-type: none"> <li>Structural organization of DNA</li> </ul>			M
	<ul style="list-style-type: none"> <li>Replication of DNA</li> </ul>			M
	<ul style="list-style-type: none"> <li>Mutations &amp; DNA repair mechanisms</li> </ul>			M
	<ul style="list-style-type: none"> <li>Transcription</li> </ul>			M
	<ul style="list-style-type: none"> <li>Genetic code &amp; their properties</li> </ul>			M
	<ul style="list-style-type: none"> <li><i>Regulation of Gene expression</i></li> </ul>			D
	<ul style="list-style-type: none"> <li>Recombinant DNA technology, cDNA library,</li> <li>PCR: types &amp; applications</li> </ul>			M/D/M

	• <i>Biochemistry of cancer: tumor suppressor genes, oncogenes, oncogenic viruses</i>			D
16.	• <b>tumor markers</b>			M
17.	<b>Clinical Enzymology:</b> Enzymes of diagnostic & therapeutic significance	2	1	M
18.	<b>Free radicals and antioxidants</b>	2	1	M
19.	<b>Other body fluids</b> Saliva	2	1	M
20.	<b>Detoxification</b>	2	1	M
21.	<b>Hormones</b> • Mechanism of action of hormones Metabolic functions of hormones	2	2	M

**PRACTICALS:-**

- Qualitative analysis of carbohydrates & proteins
- Color reactions of amino acids
- Urine analysis (normal, abnormal)

**Quantitative: (Demonstration only)**

- Analysis of saliva
- Electrophoresis
- Chromatography
- *Extraction of DNA & PCR*
- *Electrolytes – ISE method*

**Note :** All the components which are DESIRABLE TO KNOW are typed in italics & not in bold

**Scheme of examination:**

1. **Theory: 70 Marks**

Part I: 20 MCQs (20 X 0.5 = 10 Marks)

Part II:

Section A: 1 LAQ (1 X 10 = 10 Marks)

3 SAQs (3 X 5 = 15 Marks)

Section B: 1 LAQ (1 X 10 = 10 Marks)

3 SAQs (3 X 5 = 15 Marks)

Section C: 5 VSAQs (5 X 2 = 10 Marks)

**Theory Internal assessment: 10 marks**

**Viva voce: 20 marks**

**Total = 100 Marks**



2. **Practical examination:** 90 Marks  
**OSPE** 80 Marks  
**Practical Record** 10 Marks  
**Practical Internal Assessment** – 10 Marks  
**Total – 100 Marks**

**Blueprint for Theory Paper:**

**The questions can be distributed as follows:**

90% should from the must know areas

10 % should be from desirable to know areas

MCQs should be from must know areas

MCQs	All the Topics	10 Marks
<b>Section A</b>	Cell biology and subcellular organelles, Bio-membranes and Membrane Transport system Molecular biology and Cancer Biology, Nucleotide chemistry & Metabolism, General and clinical Enzymology, Biological oxidation, Lipid chemistry and metabolism, Mineral and Nutrition	1.4%
<b>Section B</b>	Carbohydrate chemistry and metabolism, Vitamin, Amino Acid Metabolism, Haemoglobin chemistry and metabolism, Organ function Test & acid – base Balance, Hormones, Free radicals and Anti-oxidants, Detoxifications	25 Marks
<b>Section C</b>	All the Topics	10 Marks

**Weightage for each topic**

- 1) Cell biology and subcellular organelles, Bio-membranes and Membrane Transport system Molecular biology and Cancer Biology (5) 7%
- 2) Nucleotide chemistry & Metabolism (2) 3%
- 3) General and clinical Enzymology (10) 14%
- 4) Biological oxidation (2) 3%
- 5) Lipid chemistry and metabolism (6) 9%
- 6) Mineral and Nutrition (10) 14%
- 7) Carbohydrate chemistry and metabolism (10) 14%
- 8) Vitamin (10) 14%
- 9) Amino Acid Metabolism (6) 9%
- 10) Haemoglobin chemistry and metabolism (2) 3%
- 11) Organ function Test& acid – base Balance (5) 7%
- 12) Hormones, Free radicals and Anti-oxidants, Detoxifications (2 ) 3%

**SECTION A- MATRIX I**

Topics	LAQ	SAQ
Cell biology and subcellular organelles, Bio-membranes and Membrane transport system, Molecular biology and Cancer Biology		1
Nucleotide chemistry & Metabolism		
General and clinical Enzymology	1	
Biological oxidation		
Lipid chemistry and metabolism		1
Mineral and Nutrition		1

**SECTION A- MATRIX II**

Topics	LAQ	SAQ
Cell biology and subcellular organelles, Bio-membranes and Membrane Transport system Molecular biology and Cancer Biology		1
Nucleotide chemistry & Metabolism		
General and clinical Enzymology		1
Biological oxidation		
Lipid chemistry and metabolism		1
Mineral and Nutrition	1	

**SECTION B- MATRIX I**

Chapters	LAQ	SAQ
Carbohydrate chemistry and metabolism	1	
Vitamin		1
Amino Acid chemistry and metabolism		1
Hemoglobin chemistry and metabolism		
Organ function Test & Acid – Base Balance		1
Hormones, Free radicals and Anti-oxidants, Detoxifications		

**SECTION B- MATRIX II**

Chapters	LAQ	SAQ
Carbohydrate chemistry and metabolism		1
Vitamin	1	
Amino Acid chemistry and metabolism		1
Haemoglobin chemistry and metabolism		
Organ function Test & Acid – Base Balance		1
Hormones, Free radicals and Anti-oxidants, Detoxifications		

**PART I & SECTION C**

Topics	VSAQ Matrix I	VSAQ Matrix II	MCQs
Cell biology and subcellular organelles, Bio-membranes and Membrane Transport system Molecular biology and Cancer Biology		1	2
Nucleotide chemistry & Metabolism	1	1	1
General and clinical Enzymology		1	1
Biological oxidation			2
Lipid chemistry and metabolism			2
Mineral and Nutrition	1		2
Carbohydrate chemistry and metabolism		1	1
Vitamin	1		2
Amino Acid chemistry and metabolism	1		2
Haemoglobin chemistry and metabolism	1		2
Organ function Test & Acid – Base Balance			1
Hormones, Free radicals and Anti-oxidants, Detoxifications		1	2

**Recommended books**

- 1) Nutritional Biochemistry 1995, S. Ramakrishnan and S.V. Rao
- 2) Vasudevan DM and Sreekumari S (2016), Textbook of biochemistry for medical students,
- 3) Lecture notes in Biochemistry 1984, J.K. Kandlish
- 4) Text book of Biochemistry with clinical correlations 1997, T.N. Devlin
- 5) Harper's Biochemistry, 1996, R.K. Murray et.al
- 6) Basic and applied Dental Biochemistry, 1979, R.A.D. Williams & J.C. Elliot
- 7) Prasad R. Manjeswar, 2014 third edition, Text book of Biochemistry for Dental students.

**UNIVERSITY MODEL QUESTION  
PAPER I BDS - BIOCHEMISTRY**

**Time 3 hours**

**Max Marks: 70**

**Instructions: Attempt all the questions  
Illustrate your answers with suitable diagrams**

**PART - I**

**MODEL MULTIPLE CHOICE QUESTIONS**

**20 X 0.5 = 10**

1. In eukaryotes, mitochondria are the organelles primarily involved in
  - a) Production of ATP
  - b) Phospholipid assembly
  - c) Export of enzymes
  - d) Lipid synthesis
2. The main lipid component of cell membrane is
  - a) Phospholipid
  - b) Glycolipid
  - c) Sphingolipid
  - d) Cholesterol
3. Number of hydrogen bonds in G-C pairs
  - a) 2 Hydrogen bonds
  - b) 3Hydrogen bonds
  - c) 4Hydrogen bonds
  - d) 5 Hydrogen bonds
4. Night blindness and xerophthalmia caused by deficiency of
  - a) Vitamin D
  - b) Vitamin A
  - c) Vitamin K
  - d) Vitamin E
5. COMPLEX-III inhibitor in electron transport chain is
  - a) British antilewisite
  - b) Rotenone
  - c) Carboxin
  - d) Cyanide
6. All statements true regarding Brown adipose tissue except
  - a) Produces ATP
  - b) Rich in mitochondria
  - c) Thermogenin is present in it
  - d) Present in newborns and hibernating animals
7. The dietary lipids from the intestine are transported to liver by which lipoprotein?
  - a) Chylomicrons
  - b) High Density Lipoprotein (HDL)
  - c) Low Density Lipoprotein (LDL)
  - d) Very Low Density Lipoprotein (VLDL)

8. The end product of oxidation of odd chain fatty acids
  - a) Propionic acid
  - b) Palmitic acid
  - c) Butyric acid
  - d) Cholesterol
9. Which of the following fatty acids is glucogenic
  - a) Palmitic acid
  - b) butyric acid
  - c) Propionic acid
  - d) Linoleic acid
10. Wilson's disease is due to defect in
  - a) Transferrin
  - b) Alpha -1 antitrypsin
  - c) Ceruloplasmin
  - d) Haptoglobin
11. True about kwashiorkor include all except:
  - a) decrease in plasma albumin
  - b) increase in plasma cortisol
  - c) Increase in appetite
  - d) Increase in lipoprotein synthesis
12. The negative charge on DNA at physiological pH is due to
  - a. DeoxyRibose
  - b. Phosphate
  - c. Adenine
  - d. Thymine
13. Which of the following enzyme are used to join fragments of DNA
  - a) DNA ligase
  - b) DNA polymerase
  - c) Primase
  - d) Helicase
14. True about reversible non-competitive inhibitors
  - a) Lower Vmax
  - b) Lower Km
  - c) Increase Km
  - d) Increase Vmax
15. The Electron transport chain is located in
  - A) Endoplasmic reticulum
  - B) Mitochondria
  - C) Golgi apparatus
  - D) Nucleus
16. All are Physiological uncouplers of oxidative phosphorylation except
  - a) Bilirubin
  - b) Oxygen
  - c) Thermogenin
  - d) Thyroxin

17. Transketolase activity is affected in deficiency of
  - a) Biotin
  - b) Pyridoxine
  - c) Paraaminobutyric acid
  - d) Thiamine
18. Which of the following vitamin is used therapeutically as a lipid lowering drug
  - a. Folic acid
  - b. Biotin
  - c. Niacin
  - d. Vitamin C
19. The key enzyme of glycolysis is
  - a) Glucose 6 phosphatase
  - b) Glyceraldehyde-3-phosphate dehydrogenase
  - c) Phosphofructokinase
  - d) Phosphohexoisomerase
20. The abnormal constituent of urine among the following is
  - a) Urobilinogen
  - b) Glucose
  - c) Creatinine
  - d) Uric acid

**PART II:**  
**SECTION A**

**LONG ANSWER QUESTION** (1X10=10)

1. Mention different types of enzymes inhibition with suitable example for each?

**SHORT ANSWER QUESTIONS** (3X5 =15)

2. Describe the metabolism of LDL with suitable illustration
3. Mention the functions of fluoride in dental health
4. What is the function of mitochondria and golgi complex.

**SECTION B**

**LONG ANSWER QUESTION** (1X10=10)

5. Explain with a schematic diagram how iron is absorbed, transported metabolised and stored in our body. List the biochemical investigations which will help you to diagnose iron deficiency anaemia with suitable explanation?

**SHORT ANSWER QUESTIONS** (3X5=15)

6. Briefly explain the structure and function of Fluid mosaic model of Bio membrane with suitable diagram.
7. Explain the regulation of enzymes?
8. Mention the ketone bodies and list 3 causes for ketosis.

**SECTION C**

**VERY SHORT ANSWER QUESTIONS** (5X2=10)

9. Mention the function of tRNA and mRNA.
10. List any four enzyme increased in Liver disorders
11. What are dietary fibers? Give examples.
12. What are mucopolysaccharides and give examples?
13. Mention the deficiency manifestations of vitamin C

**DENTAL ANATOMY, EMBRYOLOGY AND ORAL HISTOLOGY**

Number of hours prescribed by DCI		
Theory hours	Practical hours	Total
<b>Total: 105</b>	<b>Total: 250</b>	<b>355</b>

**GOAL**

Goal is to incorporate knowledge about basic Dental Sciences - Dental Anatomy, Embryology & Oral Histology and their clinical applications.

**OBJECTIVES****KNOWLEDGE**

After a course on Dental Anatomy, Embryology and Oral Histology,

1. The student is expected to appreciate the normal development, morphology, structure & functions of oral tissues & variations in different pathological/non-pathological states.
2. The student should understand the histological basis of various dental treatment procedures and physiologic ageing process in the dental tissues.
3. The students must know the basic knowledge of various research methodologies.

**SKILL**

The student should acquire basic skills in:

- Carving of crowns of permanent teeth in wax.
- Microscopic study of oral tissues.
- Identification of Deciduous & Permanent teeth.
- Age estimation by patterns of teeth eruption from plaster casts of different age groups.

**SYLLABUS I YEAR****Theory – 105 hours**

S. No	Topic	System weightage	Number of hours	Must know (M)/ Desirable to know (D)/ Nice to know (N)
1.	Introduction to tooth morphology	3.2%	5	M
2.	Morphology of all Permanent teeth	20%	20	M
3.	Morphology of all Deciduous teeth	6%	5	M
4.	Occlusion	2%	5	M
5.	Development and growth of face and jaws.	2.5%	4	D



6.	Development of tooth	5%	6	M
7.	Cranial nerves with more emphasis on V, VII and IX.	2%	2	M
8.	Blood supply, nerve supply and lymphatic drainage of teeth and surrounding structures.	2%	2	M
9.	Cell – structure and function	1.9%	3	N
10.	Cell – structure and function	1.9%	3	N
11.	Detailed microscopic study of Enamel	6%	7	M
12.	Detailed microscopic study of Dentin	5%	6	M
13.	Detailed microscopic study of Cementum	2%	2	M
14.	Detailed microscopic study of Pulp tissue	3.5%	4	M
15.	Detailed microscopic study of Periodontal ligament	3.5%	4	M
16.	Detailed microscopic study of Alveolar bone	3%	3	M
17.	Detailed microscopic study of Oral Mucosa	7%	6	M
18.	Salivary Glands	5%	4	M
19.	Lymphoid tissues and lymphatics	1.3%	2	N
20.	Histochemistry of oral tissues	1.7%	2	D
21.	Preparation of specimens for histologic study	1.6%	1	N
22.	Eruption of Deciduous & Permanent teeth	2.5%	2	M
23.	Shedding of teeth	2.5%	1	M
24.	Temporomandibular joint	2%	2	M
25.	Calcium, Fluoride, Phosphorous metabolism	1.8%	2	M
26.	Mastication and Deglutition	2%	1	M
27.	Theories of mineralization	2%	1	M
28.	Speech	1%	1	N

## TOPICS FOR INTEGRATED TEACHING

SL. NO.	SUBJECT	TOPICS
1.	ANATOMY	
		Development and growth of face
		Cranial nerves V, VII & IX
		Blood supply nerve supply, lymphatic drainage of surrounding structures
		Maxillary sinus
		Salivary gland
		Lymphoid tissue and lymphatics

2.	BIOCHEMISTRY	Calcium, phosphorus and fluoride metabolism.
3	PHYSIOLOGY	Cell
		Speech
		Deglutition and taste
4	PAEDODONTIA	Differences between the deciduous and permanent Dentition
		Morphology of all Deciduous teeth
		Eruption of deciduous & Permanent teeth
		Shedding of teeth
5.	PROSTHODONTIA	Occlusion

**PRACTICAL : 250 Hours****Dental Anatomy : 150 hrs**

Carving on wax blocks:(120 hrs)

- Cube, rectangle, cone and cylinder (any one)
- Individual tooth - Only permanent teeth of both arches. Central Incisors, Lateral, Canines, Premolars and 1st molar.

Record : (30 hrs)

- Drawings of individual deciduous teeth
- Drawings of individual Permanent teeth
- Chronology of deciduous and permanent teeth
- Draw the primary dentition
- Draw the mixed dentition
- Draw the permanent dentition

**Oral Histology: 80 hrs**

Sl no	CONTENT	DURATION
1.	<b>Development of tooth:</b> <ol style="list-style-type: none"> <li>1. Bud stage</li> <li>2. Cap stage</li> <li>3. Early bell stage</li> <li>4. Late Bell stage</li> <li>5. Hertwig's epithelial root sheath</li> </ol>	12 hrs
2.	<b>ENAMEL:</b> <ol style="list-style-type: none"> <li>1. Enamel rod.</li> <li>2. Hunter-Schreger Bands</li> <li>3. Tufts, Lamellae, Spindles.</li> <li>4. Incremental lines of Retzius.</li> <li>5. Gnarled Enamel.</li> </ol>	12 hrs

3.	<b>DENTIN:</b> 1. Dentino - Enamel junction. 2. Dentinal Tubules. 3. Incremental lines of Von Ebner. 4. Tomes granular layer. 5. Interglobular Dentin.  6. Secondary Dentin. 7. Intratubular Dentin. 8. Intertubular Dentin. 9. Dead tracts 10. Tertiary Dentin 11. Sclerotic Dentin	14 hrs
4.	<b>CEMENTUM :</b> 1. Cellular cementum. 2. Acellular cementum. 3. Cemento enamel junction - Type 1 - 60% type - Overlapping. - Type 2 - 30% type - Butt - Type 3 - 10% type - GAP type 4. Sharpey's fibers. 5. Hypercementosis.	8 hrs
5.	<b>PULP :</b> 1. Zones of Pulp 2. Pulp stones	5 hrs
6.	<b>PERIODONTAL PRINCIPAL LIGAMENT:</b> 1. Principal fibers of Periodontal ligament - Apical, Horizontal, Oblique, Alveolar crest, Interradicular, Transeptal	5 hrs
7.	<b>ALVEOLAR BONE:</b> 1. Haversian system. 2. Trabeculated bone. 3. Mature and immature bone.	4 hrs
8.	<b>SALIVARY GLANDS:</b> 1. Mucous gland. 2. Serous gland. 3. Mixed gland.	6 hrs

9.	<b>MAXILLARY SINUS :</b> Sinus lining (Pseudostratified ciliated columnar)	2 hrs
10.	<b>ORAL MUCOUS MEMBRANE:</b> 1. Parakeratinised epithelium 2. Orthokeratinised epithelium 3. Non keratinized epithelium 4. Tongue - Circumvallate papillae - Fungiform papillae - Filiform papillae -	12 hrs

**PRACTICAL DEMONSTRATION: 20 hrs**

1. Identification of Individual teeth.
  - Deciduous.
  - Permanent.
1. Mixed dentition using study models.
2. Demonstration of preparation of ground section, Decalcification, Paraffin section & H & E Staining.

**Scheme of examination:**

1. **Theory: 70 Marks**

Part I: 20 MCQs (20 X 0.5 = 10 Marks)

Part II:

Section A: 1 LAQ (1 X 10 = 10 Marks)

3 SAQs (3 X 5 = 15 Marks)

Section B: 1 LAQ (1 X 10 = 10 Marks)

3 SAQs (3 X 5 = 15 Marks)

Section C: 5 VSAQs (5 X 2 = 10 Marks)

**Theory Internal assessment: 10 marks**

**Viva voce: 20 marks**

**Total = 100 Marks**

2. **Practical examination: 90 Marks**

**Practical Internal Assessment – 10 Marks**

**Total – 100 Marks**

**Blueprint for Theory Paper:**

Type of question and Marks	Topic
PART I- MCQs	10 MCQ'S from Oral Histology
	10 MCQ'S from Dental anatomy, Oral embryology
PART – II	
Section A (25 marks)	Oral Histology
SectionB (25 mark)	Dental anatomy, Oral embryology
Section C VSAQ – (5X 2 = 10 mark)	3 VSAQ s from Oral Histology 2 VSAQ s from Dental anatomy, Oral embryology

The questions will be distributed as follows:

- 70 % from the Must know areas
- 20 % from Desirable to know areas
- 10 % from Nice to know areas
- MCQ'S from must know areas only

### SECTION A

**Model 1:** IF LAQ IS FROM THE STRUCTURE OF TOOTH, THE MATRIX IS AS FOLLOWS

	SECTION A	LAQ(1X10)	SAQ(3X5)	VSAQ
1.	Structures of The Tooth	1	1	1
2.	Oral Mucous Membrane		1	
3.	Salivary Gland		1	1

**Model 2:** IF LAQ IS FROM THE ORAL MUCOUS MEMBRANE, THE MATRIX IS AS FOLLOWS

	SECTION A	LAQ(1X10)	SAQ(3X5)	VSAQ
1.	Structures of The Tooth		1	1
2.	Oral Mucous Membrane	1		
3.	Salivary Gland		1	1

### SECTION –B

**Model 1 :** IF LAQ IS FROM THE DEVELOPMENT OF FACE, ORAL CAVITY AND TOOTH, THE MATRIX IS AS FOLLOWS

	SECTION – B	LAQ(1X10)	SAQ(3X5)	VSAQ
1.	Development of Face, Oral Cavity and Tooth	1		
2.	Introduction To Dental Anatomy, Eruption & Shedding		1	1
3.	Morphology of All Permanent Teeth and Pulp Canals and Chamber		1	1
4.	Occlusion and oral physiology Oral Anatomy		1	1

**Model 2 : IF LAQ IS FROM THE MORPHOLOGY OF ALL PERMANENT TEETH, THE MATRIX IS AS FOLLOWS**

	SECTION – B	LAQ(1X10)	SAQ(3X5)	VSAQ
1	Development Of Face, Oral Cavity and Tooth		2	
2	Introduction To Dental Anatomy, Eruption & Shedding			1
3.	Morphology Of All Permanent Teeth and Pulp Canals and Chamber	1		1
3	Occlusion and oral physiology, Oral Anatomy		1	1

	SECTION – B	LAQ(1X10)
1	MCQ'S FROM SECTION A- 10	10 x 0.5 = 5 Marks
2	MCQ'S FROM SECTION B- 10	10 x 0.5 = 5 Marks
	<b>Total</b>	<b>10 marks</b>

**Blueprint for Practical Examination:**

**Tooth carving & Record- 40 Marks (Time duration – 45 minutes)**

**OSPE- 50 Marks**

Time duration of single station – 5 minutes

5 Marks per station

#### REFERENCE BOOK

- Dental anatomy by Scoot & Simon
- Oral Development & Histology by James and Avery
- Applied physiology of the Mouth by Lavelle
- Dental anatomy – its relevance to Dentistry 5th Edition by Woelfel

#### Recommended books

Name of the Book & Title	Author	Edition
Orban's Oral Histology & Embryology	Orban's S.N Bhaskar	13 <sup>th</sup>
Oral Histology, Development, Structure & Function	A.R. Tencate	8 <sup>th</sup>
Dental Anatomy, Physiology & Occlusion	Wheeler's Major M. Ash	9 <sup>th</sup>

**(UNIVERSITY MODEL QUESTION  
PAPER) I BDS EXAMINATION**

**DENTAL ANATOMY, EMBRYOLOGY AND ORAL HISTOLOGY**

**Time: 3 hours**

**Max. Marks: 70**

**Instructions: Attempt all the questions  
Illustrate your answers with suitable diagrams**

**PART - I**

**MODEL MULTIPLE CHOICE QUESTIONS:**

**20 X 0.5 = 10**

1. Hertwig's epithelial root sheath is made up of
  - a. Outer and Inner epithelium
  - b. Stratum Intermedium
  - c. Stellate Reticulum
  - d. Hyaline layer of Hopewell - Smith
2. Incremental lines of Retzius are seen in
  - a. Enamel
  - b. Dentine
  - c. Cementum
  - d. Pulp
3. Dentinal tubules are
  - a. concave
  - b. straight
  - c. s-shaped
  - d. None of the above
4. Identify the most appropriate protein secreted by the Odontoblast
  - a. Chitin
  - b. Keratin
  - c. Collagen
  - d. Elastin
5. Secondary cementum is generally confined to
  - a. Cervical third of the root
  - b. Middle third of the root
  - c. apical third of the root
  - d. No secondary forms
6. Fibers of the periodontal ligament embedded in the bone are
  - a. Sharpey's fibers
  - b. Tomes fibers
  - c. Elastic fibers
  - d. Ray's fibers
7. Mature bone is most appropriately called as
  - a. Woven bone
  - b. Bundle bone
  - c. Laminar bone
  - d. Trabecular bone



8. Myoepithelial cells are present in
  - a. Intercalated duct and Striated duct
  - b. Serous Acini
  - c. Mucous Acini
  - d. All of the above
9. Keratohyaline granules are found in
  - a. Stratum granulosum
  - b. Stratum spinosum
  - c. Stratum Basale
  - d. Prickle cell layer
10. Main arterial supply of the tonsil is from
  - a. Facial artery
  - b. Ascending pharyngeal artery
  - c. Palatine artery
  - d. Greater palatine artery
11. Primary dentition period is from
  - a. Birth to 11 years
  - b. Six months to eleven years
  - c. Six months to six years
  - d. Six years to eleven years
12. Mesial marginal groove is found in
  - a. maxillary lateral incisors
  - b. Maxillary first premolar
  - c. Maxillary first molar
  - d. All of the above
13. The tooth bud for the third molar is initiated at about the age of
  - a. sixth month of intra uterine life
  - b. First year of the life
  - c. Second year of the life
  - d. Eight year of the life
14. circumvallate papillae are present
  - a. Behind sulcus terminalis
  - b. Front of sulcus terminalis
  - c. Anterior 2/3 of tongue
  - d. Lateral border of the tongue
15. TMJ is a
  - a. Ball and socket joint
  - b. Hinge and axis joint
  - c. Synovial joint
  - d. Diarthrodial joint
16. The nonkeratinised papilla of tongue is
  - a. Filiform papilla
  - b. circumvalate papilla
  - c. Fungiform papilla
  - d. All of the above

17. Mesial contact area of the permanent canine is at the
  - a. Middle third
  - b. Junction of the incisal and middle third
  - c. Junction of the middle and cervical third
  - d. None of the above
18. The primary center of formation of each lobe is present in the
  - a. Apex of the root
  - b. Tip of the cusp
  - c. Center of the crown
  - d. Center of the tooth
19. Calcification of permanent first molar usually begins in the
  - a. third month of intra uterine life
  - b. second month of intra uterine life
  - c. At birth
  - d. Third month of extra uterine life.
20. Masticatory mucosa in oral cavity covers the
  - a. floor of the mouth and soft palate
  - b. Alveolar mucosa and vestibular fornix
  - c. Lip and cheek
  - d. Gingiva and hard palate

**PART II**  
**SECTION - A**

**LONG ANSWER QUESTION** **(1 X 10 = 10)**

1. Classify oral mucosa and discuss in detail on the keratinized epithelium of oral mucosa.

**SHORT ANSWER QUESTIONS** **(3 X 5 = 15)**

2. Difference between serous and mucous cells.
3. Write a note on Enamel tufts.
4. Difference between cellular and acellular Cementum

**SECTION - B**

**LONG ANSWER QUESTION** **(1 X 10 = 10)**

5. Discuss on the Chronology & Morphology of the maxillary first molar.

**SHORT ANSWER QUESTIONS** **(3 X 5 = 15)**

6. How is the permanent and primary teeth designated by FDI system?
7. What is the role of Hertwig's epithelial root sheath in root formation and its fate?
8. List out the theories of tooth eruption and write a note on ligament traction theory.

**SECTION C**

**VERY SHORT ANSWER QUESTION** **(5 x 2 = 10 Marks)**

9. What are Sharpey's fibres?
10. Define denticles & list out the types? (denticles -1) Types -1)
11. List out the functions of maxillary sinus.
12. Write any two differences between permanent maxillary central and lateral incisors.
13. Give 2 common sequences of eruption of primary teeth.

## **II YEAR SYLLABUS**

**GENERAL PATHOLOGY**

Number of hours prescribed by DCI		
Theory hours	Practical hours	Total
<b>Total: 55</b>	<b>Total: 55</b>	<b>110</b>

**GOAL**

Apply the scientific study of disease processes, which result in morphological and functional alterations in cells, tissues and organs to the study of pathology and the practice of dentistry

**OBJECTIVES**

Enabling the student

1. To demonstrate and apply basic facts, concepts and theories in the field of Pathology.
2. To recognize and analyze pathological changes at macroscopically and microscopical levels and explain their observations in terms of disease processes.
3. To Integrate knowledge from the basic sciences, clinical medicine and dentistry in the study of Pathology.
4. To demonstrate understanding of the capabilities and limitations of morphological Pathology in its contribution to medicine, dentistry and biological research.
5. To demonstrate ability to consult resource materials outside lectures, laboratory and tutorial classes.

**SYLLABUS**

Theory – 55 hours

S. No	Topic	System weightage General pathology- 50% Haematology- 14% Oral pathology and salivary glands- 5% Systemic Path-31 %	Number of hours	Must know (M)/ Desirable to know (D)/ Nice to know (N)
<b>GENERAL PATHOLOGY - 50%</b>				
<b>Introduction to pathology</b>				
1.	Historical aspects; definition of terms; introduction to pathology, its applications and role in patient management.		1	M

Cell injury				
1.	Cellular responses to stress- (hyperplasia, hypertrophy, atrophy & metaplasia)		1	M
2.	-Cell injury and cell death -cause & mechanism - Types of cell injury [reversible & irreversible] -Morphology of cell injury (reversible & necrosis), with examples		2	M
3.	Apoptosis- Definition, examples		1	M
	-Intracellular accumulation, (examples: Lipid, protein, glycogen and pigment accumulation) -Calcification- Definition, types & differences -Cellular aging-causes		2	M
Cell response to injury				
1.	Immune system Introduction & basic concepts to body's immune response (examples- innate & adaptive immunity)		1	M
2.	Acute Inflammation -General features of inflammation -Vascular events; cellular events [steps]		1	M
3.	Acute Inflammation -Cellular events (chemotaxis, phagocytosis)		1	M
4.	Acute Inflammation Chemical mediators involved in steps -Outcomes of acute inflammation		1	M
5.	Chronic Inflammation Chronic inflammation - (causes) Granuloma- formation with examples Granulomatous diseases [leprosy, syphilis, TB]		2	N
6.	Wound healing Basic Steps of wound healing Healing by primary intention, surgical incision secondary intention,- steps Complications of wound healing, Factors affecting wound healing		1	M
Haemodynamic disturbances				
1.	-Oedema - Definition, types & mechanism - Hyperemia- Chronic venous congestion- liver & spleen [ causes & morphology]		1	M
2.	-Thrombosis- Definition, pathogenesis [Virchow's triad], types & complication -Emboli- types, complications		1	M

**General Pathology**

3.	-Infarction- Definition, types & differences -Shock- definition, types with examples -Septic shock- causes & complications		1	M
<b>Genetic disorders</b>				
1.	Normal karyotype- Definition -Autosomal dominant/ recessive disorder-names of the condition - Cytogenetic abnormality- Down's syndrome, Klinefelter syndrome, Turner syndrome		1	M
2.	Genetic disorders- clinical conditions names		1	D
<b>Disorders of Immunity</b>				
1.	Immune system Introduction Disorders of immunity – Types of Hypersensitivity reactions with examples		1	M
2.	Autoimmunity –Definition with examples -Basic concepts in -SLE, Rheumatoid arthritis, systemic sclerosis, Sjogren's syndrome		1	M
3.	Primary & secondary immunodeficiency conditions - examples		1	M
<b>Neoplasia</b>				
1.	Introduction to Neoplasia/cancer Definition, basic concepts in neoplasia -Differences between benign & malignant tumours, Tumour spread- modes & complications Mechanism of invasion of cancer		1	M
2.	- Molecular basis of Neoplasia–basic concepts (essential alterations for cancer formation -Names of oncogenes & tumour suppressorgenes)		2	D
3.	-Carcinogenesis- Definition - Names of carcinogenic agents		2	M
<b>Infectious disorders</b>				
1.	Mycobacterial infections –Tuberculosis, Pathogenesis, Sites, types, morphology [Ghon's complex], complications of primary TB		2	M
2.	Leprosy & syphilis- Sites, types, morphology, lab diagnosis Fungal infections & Parasitic infestations		1	M
<b>Environmental disorders</b>				
1.	Nutritional deficiencies-Vitamin deficiencies		1	M

Hematology- 14%				
1.	<b><u>Introduction &amp; Basic concepts</u></b> Development of haematopoietic cells, bone marrow, classification of anaemia		1	M
2.	<b>Anaemia</b> - WHO definition, classification, types, morphology of each types [Peripheral smear & bone marrow findings] Nutritional anaemia Aplastic anaemia		2	M
3.	<b><u>Haemolytic anemia</u></b> – classification, Types & its laboratory aspects of diagnosis Reticulocyte- Definition, stains		1	M
4.	<b>Bleeding disorders</b> -classification, disorders of platelets, coagulation disorders & lab diagnosis Immune thrombocytopenia purpura Thrombotic thrombocytopenia purpura Hemophilia & Von willibrand disease		1	M
5.	<b>Leukaemia</b> -Definition, classification, types <b>Acute leukemias</b> - Morphology, etiopathology <b>Chronic leukemias</b> -Types, morphology, etiopathology		1	M
6.	<b>Blood banking</b> – types of Grouping, Cross matching & Screening of Donors <b>Blood Components</b>		1	M
7.	<b>Lymphnode</b> - Nonneoplastic lymphadenitis Neoplastic diseases-Hodgkin lymphoma		1	D
Oral cavity and Salivary glands- 5%				
1.	-Premalignant lesions of oral cavity -Causes of white lesions of oral cavity -Sialadenitis		1	M
2.	Classification of salivary gland tumour, types- <b>Pleomorphic adenoma, Warthin tumour</b> - morphology with diagram		2	M
Systemic Pathology-31%				
Skeletal system				
1.	<b><u>Introduction to Bones &amp; Joints</u></b> Non neoplastic lesions – Osteomyelitis Neoplastic lesions- Classification of bone tumors, osteosarcoma, giant cell tumor, Ewings sarcoma-Morphology, sites & complications		2	M



	-Tumours of jaw -Fibrous dysplasia, Aneurysmal bone cyst-Morphology			
<b>Cardiovascular system</b>				
1.	<b>Atherosclerosis</b> – Causes, etiopathogenesis & complications <b>Ischaemic heart disease &amp; myocardial infarction</b> – causes, etiopathogenesis, morphology & lab diagnosis <b>Rheumatic fever</b> - Definition, causes, Criteria, morphology <b>Vasculitis/Kaposi sarcoma</b> - types <b>Congenital heart disease</b> - Names of clinical conditions Vascular tumours, Types, morphology with <b>diagram</b> <b>Infective endocarditis</b> - causes, morphology, vegetations types & complications		2	M
<b>Kidney</b>				
1.	<b>Glomerulonephritis</b> , Nephrotic, nephritic syndrome - Basic concepts. <b>Chronic Pyelonephritis</b> - causes, morphology <b>Renal calculi</b> - types		2	D
	<b>Soft tissue</b>			
2.	<b>Tumors of soft tissue</b> - classification, morphology <b>Lipoma</b> - sites, types, morphology, diagram <b>Leiomyoma</b> - sites, morphology, diagram		2	D
<b>Hypertension</b>				
1.	<b>Definition, classification, pathophysiology</b> - basic concepts		Seminar 1	M
<b>Diabetes</b>				
1.	Definition, classification, Pathogenesis, effects on various organs- <b>Diabetic kidney</b> -morphology Lab diagnosis of diabetes & complication of DM		Seminar 1	M

**Practicals: no: of hours = 55**

S. No	Practicals	Hours
1.	Departmental tour, introduction to dept, central lab, blood bank	2 hrs

2.	Cell injury- Morphological types of necrosis Specimen- caseous necrosis-lymphnode, Gangrene- gangrene foot/toe, intestine Slides- caseous necrosis/TB lymphadenitis	2 hrs
3.	Morphology of fatty, cloudy, hyaline change, Demonstration of different types of pigments, calcification  Specimen& slide- fatty liver	2 hrs
4.	Tutorials Cell injury	2 hrs
5.	Morphological aspects of inflammation Specimen- acute appendicitis	2 hrs
6.	Morphology of granuloma, granulomatous inflammationSlide- granuloma/TB, leprosy	2 hrs
7.	Slide - granulation tissue	2 hrs
8.	Tutorial Inflammation and repair	2 hrs
9.	Chronic venous congestion-liver, spleen Myocardial infarct-slide	2 hrs
10.	Tutorial hemodynamics	2hrs
11.	morphological aspects of benign and malignant tumours Specimen-lipoma, Melanoma, Squamous cell carcinoma. Slides- lipoma, hemangioma, squamous cell carcinoma, basal cell carcinoma	2 hrs
12.	Tutorial Neoplasia	2 hrs
13.	Morphological aspects of tuberculosis Specimen-TB lymphnode	2 hrs
14.	Tutorial – Tuberculosis	2hrs
15.	Collection of blood, anticoagulants, - vacutainers Hb estimation & interpretations	2hrs
16.	Total & Differential leucocyte count –Peripheral smear	
17.	Tutorial – Leukaemia & Anaemia	4 hrs
18.	Blood grouping-types & interpretations	2 hrs
19.	Morphology of salivary gland tumors Gross- pleomorphic adenoma Slides- pleomorphic adenoma	2 hrs
20.	Morphology of bone tumors Specimen-osteochondroma Slides- giant cell tumor/osteoclastoma	2 hrs
21.	Urine examination-Physical, chemical examination and sediment	3hrs

**General Pathology**

22.	Cardiovascular system- Atheroma aorta	2 hrs
23.	Soft tissue-Lipoma	2 hrs
24.	Kidney- Chronic pyelonephritis	2 hrs

**Scheme of examination:****1. Theory: 70 Marks**

Part I: 20 MCQs (20 X 0.5 = 10 Marks)

Part II:

Section A: 1 LAQ (1 X 10 = 10 Marks)

3 SAQs (3 X 5 = 15 Marks)

Section B: 1 LAQ (1 X 10 = 10 Marks)

3 SAQs (3 X 5 = 15 Marks)

Section C: 5 VSAQs (5 X 2 = 10 Marks)

**Theory Internal assessment: 10 marks****Viva voce: 20 marks****Total = 100 Marks****2. Practical examination: 90 Marks****Practical Internal Assessment – 10 Marks****Total – 100 Marks****Blueprint of theory paper :****Section A Topics : General Pathology,**

[Cell injury, Inflammation, Repair, infectious diseases, Neoplasia, Hemodynamic disorders, Genetics]

25 Marks

**Section B Topics : Hematology, systemic pathology, blood bank**

25 Marks

**Theory questions must be asked from the Must Know area only****Part I (MCQs) & Section C (VSAQs)**

Sl. No	TOPICS	5 VSAQs (5X2)	20 MCQs (20x 0.5 = 10)
1.	General Pathology (repair, Genetics)	1	4
2.	Hematology(bleeding disorders)	1	4
3.	Blood bank	1	4
4.	Systemic pathology [Oral cavity & Diabetes]	1	4
5.	Infectious diseases [TB, Leprosy, syphilis] / Genetics	1	4
	<b>TOTAL</b>	<b>10 marks</b>	<b>10 MARKS</b>

Section A (General Pathology, Inflammation, Neoplasia, Hemodynamics)				
Sl. No	TOPICS	LAQ (1X10)	SAQ (3X5)	Total 25 Marks
1.	General Pathology [Cell injury,]	1		10
2.	Inflammation, Repair, infectious diseases Hemodynamic disorders Neoplasia	-	3	15

Section B (Hematology, Systemic pathology, blood banking)				
Sl. No	TOPICS	LAQ (1X10)	SAQ (3X5)	Total 25 Marks
3.	Hematology [Anaemia, leukemia]	1	-	10
4.	Systemic pathology [Salivary glands, bones & soft tissues, CVS]	-	3	15

#### Blue Print for practicals (90 marks)

A Combination of traditional methods & OSPE

**Traditional** ..... Urine examination  
Hb/ blood grouping  
DLC

**OSPE** ..... Spotters (Extended spotters with questions)

1	Spotters (Extended spotters with questions)	50 marks
2	Hemoglobin/Bloodgrouping	10 marks
3	Urine Examination	15 Marks
4	DLC	15 marks
	Total	90 marks

#### Recommended Books :

1. Textbook of Pathology for dental students, 4th ed.- Harsh Mohan
2. Practical Pathology for Dental students, 3rd ed. – A.K.Mandal

**UNIVERSITY MODEL QUESTION  
PAPER I BDS EXAMINATION  
GENERAL PATHOLOGY**

**Time : 3 hours**

**Max. Marks: 70**

**Instructions: Attempt all the questions  
Illustrate your answers with suitable diagrams**

**PART - I**

**MODEL MULTIPLE CHOICE QUESTIONS**

**(20 x 0.5 = 10)**

1. Which of the following diseases are caused by acid fast bacilli?
  - A. Tuberculosis
  - B. Leprosy
  - C. Both A & B
  - D. None
2. Which of the following disease is associated with granuloma?
  - A. Tuberculosis
  - B. Leprosy
  - C. Syphilis
  - D. All the above
3. The most common cancer among males in India is
  - A. Prostate
  - B. Liver
  - C. Stomach
  - D. Kidney
4. The following type of necrosis is seen in Brain
  - A. Coagulative necrosis
  - B. Fat necrosis
  - C. Liquefactive necrosis
  - D. Gangrene
5. Down syndrome is associated with
  - A. Monosomy
  - B. Trisomy 21
  - C. Trisomy 13
  - D. None of the above
6. The following is an example of hypersensitivity
  - A. Anaphylaxis
  - B. Carcinoma
  - C. Necrosis
  - D. None of the above
7. The following is a chemical mediator in acute inflammation
  - A. Histamine
  - B. Eosinophil
  - C. Fibrin
  - D. None

8. P53 is a
  - A. Tumour suppressor gene
  - B. Oncoprotein
  - C. Both
  - D. None
9. The following is a opportunistic infection in HIV
  - A. Candidiasis
  - B. Tuberculosis
  - C. Both A&B
  - D. Carcinoma
11. Virchow's triad is
  - A. Formation of thrombus
  - B. Tumour
  - C. Inflammation
  - D. All the above
12. The following is an example of microcytic hypochromic anaemia
  - A. Iron deficiency anaemia
  - B. Thalassemia minor
  - C. Sideroblastic anaemia
  - D. All the above
13. Edema is due to
  - A. Increased hydrostatic pressure
  - B. Decreased oncotic pressure
  - C. Both
  - D. None
14. Platelet count is reduced in
  - A. Acute leukemia
  - B. Chronic leukemia
  - C. Leukemoid reaction
  - D. None
15. The following is an example of hemolytic anaemia,
  - A. Megaloblastic anaemia
  - B. Sickle cell anaemia
  - C. Iron deficiency anaemia
  - D. Aplastic anaemia
16. Pancytopenia is
  - A. Decreased RBC, WBC, Platelets
  - B. Decreased Platelets only
  - C. Decreased WBC only
  - D. None
17. Teratogens are defined as agents which induce
  - A. Mitosis
  - B. Carcinogenesis
  - C. Anemia
  - D. None

18. The mode of distant spread of tumour is called as
  - A. Dysplasia
  - B. Metastasis
  - C. Anaplasia
  - D. None
19. Chancre is seen in
  - A. Primary syphilis
  - B. Leprosy
  - C. HIV
  - D. All the above
20. Caseous necrosis is seen in
  - A. Tuberculosis
  - B. Fungal infections
  - C. Syphilis
  - D. Infarction

## PART - II

### Section A

**LONG ANSWER QUESTION:** (1x10 = 10)

1. Define necrosis. Enumerate the types of necrosis with examples. Mention the difference between necrosis and apoptosis. (3+4+3 = 10)

**SHORT ANSWER QUESTIONS:** (3x5 =15)

2. Describe the role of chemical mediators in inflammation
3. Define thrombosis. Describe the etiopathogenesis of thrombosis
4. Define neoplasia. Enumerate the difference between benign and malignant tumours.

### Section B

**LONG ANSWER QUESTION:** (1x10 = 10)

5. Define anaemia. Describe the etiopathogenesis, laboratory findings of iron deficiency anaemia. (2+3+5 = 10)

**SHORT ANSWER QUESTIONS:** (3x5=15)

6. Classify bone tumours. Describe the morphology of osteosarcoma
7. Classify salivary gland tumours. Describe the morphology of pleomorphic adenoma
8. Describe the causes and morphology of Rheumatic heart disease

### Section C

**VERY SHORT ANSWER QUESTIONS:** (5x2 =10)

9. Enumerate the complications of diabetes mellitus
10. Mention the opportunistic infections in HIV.
11. Mention the components of blood.
12. Mention the difference between leukemia and leukemoid reaction.
13. Enlist the premalignant lesions of oral cavity.

**MICROBIOLOGY**

Number of hours prescribed by DCI		
Theory hours	Practical hours	Total
<b>Total: 65</b>	<b>Total: 50</b>	<b>115</b>

**GOAL:**

To introduce the students to the exciting world of microbes. To make the students aware of various branches of microbiology & their importance, significance and contribution of each branch to mankind and other fields of medicine.

**OBJECTIVES:****Knowledge:**

At the end of the Microbiology course, the student is expected to:

1. Understand the basics of various branches of microbiology and able to apply the knowledge relevantly.
2. Apply the knowledge gained in related medical/ dental subjects
3. Understand and practice various methods of Sterilization and disinfection in dental practice.
4. Have a sound understanding of various infectious diseases and lesions in the oral cavity.

**Skills:**

At the end of the course, the student:

1. Should have acquired the knowledge to diagnose & differentiate various oral lesions.
2. Should be able to select, collect and transport clinical specimens to the laboratory.
3. Should be able to carry out proper aseptic procedures in the dental practice & skill to carry out the basic procedures / tests which are necessary/ helpful in the diagnosis.

**Syllabus****Theory – 65 hours**

S. No	Topic	No. of classes (65 Hrs)	Must know (M)/ Desirable to know (D)
<b>GENERAL BACTERIOLOGY (10 classes, 15.3%)</b>			
1	History of Microbiology & Microscopy	1	MK
2	Morphology & Anatomy of Bacteria	1	MK
3	Physiology of bacteria, growth & metabolism	1	MK
4	Sterilization -Physical Methods 1. Classification + moist heat 2. Dry heat + others	2	MK



**Microbiology**

5	Sterilization - Chemical Methods	1	MK
6	Bacterial genetics	1	DK
7	Drug resistance & AST	1	MK
8	Infection	1	MK
9	Revision	1	
<b>IMMUNOLOGY (12 classes, 18.4%)</b>			
10	Structure & function of immune system	1	MK
11	Immunity	1	MK
12	Antigen & antibodies	1	MK
13	Antigen – Antibody Reactions: general & Precipitation	1	MK
14	Complement system	1	DK
15	Antigen – Antibody Reactions(cont.): Agglutination & CFT	1	MK
16	Antigen – Antibody Reactions (cont.): RIA, ELISA, IF, NT	1	MK
17	Immune response – Humoral & Cellular	2	MK
18	Hypersensitivity – I	1	MK
19	Hypersensitivity – II	1	MK
20	Tumour immunology & Autoimmunity	1	DK
21	Test	1	
<b>SYSTEMATIC BACTERIOLOGY (16 classes, 24.6%)</b>			
22	Staphylococcus	1	MK
23	Streptococcus pyogens	1	MK
24	Pneumococci & other Streptococci	1	MK
25	Gonococci & Meningococci	1	MK
26	Corynebacterium diphtheria	1	MK
27	Classification of Clostridium & Cl. Welchii	1	MK
28	Cl. Tetani	1	MK
29	Cl. Botulinum + Non Sporing Anaerobes	1	MK
30	Mycobacterium –I: classification & M. tuberculosis	1	MK
31	Mycobacterium –II: M. tuberculosis (cont.) & atypical Mycobacteria, M. leprae	1	MK

32	Actinomycetes- Actinomyces & Nocardia	1	MK
33	Spirochetes – I: Treponema pallidum	1	MK
34	Spirochetes – II: Leptospira & Borrelia	1	MK
35	Normal microbial flora of the human body	1	MK
36	Revision	1	
37	Test	1	
<b>MYCOLOGY (3 classes, 4.6%)</b>			
38	Introduction, classification of fungi and fungal infections, lab diagnosis in general	1	MK
39	Opportunistic Mycoses - Candidiasis & Aspergillosis	2	MK
<b>VIROLOGY (14 classes, 21.5%)</b>			
40	Classification & General properties & Lab diagnosis of viruses, Bacteriophage.	1	MK
41	Herpes viruses – I	1	MK
42	Herpes viruses – II	1	MK
43	Picorna viruses: Polio	1	MK
44	Measles, Mumps and rubella, Influenza	1	MK
45	Rabies virus	1	MK
46	Hepatitis viruses – I: Hepatitis B Virus	1	MK
47	Hepatitis virus-II: other Hepatitis viruses in brief	1	MK
48	Human Immunodeficiency Virus	2	MK
49	Oncogenic viruses, adenovirus	1	DK
50	Revision	1	
51	Test	1	
<b>PARASITOLOGY (5 classes, 7.6%)</b>			
52	Introduction to Parasitology & Classification, Rhizopoda - E. histolytica	1	MK
53	Sporozoa –I malarial parasite	1	MK
54	Sporozoa –II & Opportunistic parasitic infections	1	MK
55	Ascaris, Ancylostoma & Strongyloides	1	MK
56	W. bancrofti	1	MK

<b>APPLIED MICROBIOLOGY (5 class,7.6%)</b>			
57	Hospital Acquired Infections & Immunoprophylaxis	1	MK
58	Biomedical waste management& Standard / Universal precautions	1	MK
59	Oral lesions caused by microorganisms	1	MK
60	Revision	1	
61	Test	1	

**Practical Hrs: 50 Hrs**

<b>SL. NO</b>	<b>Topic</b>	<b>No. of practicals</b>
1.	Introduction to Microbiology	1
2.	Microscopy	1
3.	Morphology	1
4.	Bacteriological sterilization and disinfection	2
5.	Culture media	1
6.	Culture methods	1
7.	Identification of bacteria	1
8.	Antibiotic susceptibility testing	1
9.	Simple staining – saliva	1
10.	Hanging drop preparation	1
11.	Gram staining	3
12.	Ziehl Neelsen staining	3
13.	Albert staining	1
14.	Antigen antibody reactions – I ASO, CRP.	1
15.	Antigen antibody reactions – II RPR.	1
16.	Intestinal nematodes (specimens)+Demonstration of eggs	1
17.	Lab diagnosis of viral infections – HIV, HBsAg	1
18.	Mycology (macroscopy and Microscopy)	1
19.	Model exam	2

**NOTE: one practical = two hours (25 practicals = 50 hours)**

**Scheme of examination**

**1. Theory: 70 Marks**

Part I : 20 MCQs (20 X 0.5 = 10 Marks)

Part II:

Section A: 1 LAQ (1 X 10 = 10 Marks)

3 SAQs (3 X 5 = 15 Marks)

Section B: 1 LAQ (1 X 10 = 10 Marks)

3 SAQs (3 X 5 = 15 Marks)

Section C: 5 VSAQs (5 X 2 = 10 Marks)

Theory Internal assessment: 10 marks

Viva voce: 20 marks

**Total = 100 Marks**

**2. Practical examination: 90 Marks**

Practical Internal Assessment – 10 Marks

**Total – 100 Marks**

**Blueprint for Theory Paper: (70 Marks)**

**Theory questions must be asked from the Must Know area only**

**Part I (MCQs) & Section C (VSAQs)**

Sl. No	TOPICS	5 VSAQs (5X2=10)	20 VMCQs (20x0.5=10)
1	General bacteriology	1	05
2	Immunology	2	05
3	Virology	1	05
4	Applied microbiology	1	05

## Microbiology

Section A (General bacteriology, Immunology and Systematic bacteriology)				
Sl. No	TOPICS	LAQ (1X10)	SAQ (3X5)	Total 25 Marks
1	General bacteriology	-	1	05
2	Immunology	-	1	05
3	Systematic bacteriology	1	1	15
Section B (Virology, Parasitology, Mycology & Applied microbiology)				
Sl. No	TOPICS	LAQ (1X10)	SAQ (3X5)	Total 25 Marks
4	Virology	1	-	10
5	Parasitology	-	1	05
6	Mycology	-	1	05
7	Applied microbiology	-	1	05

### Blueprint for practicals (90 marks)

A Combination of traditional methods & OSPE is ideal for Microbiology  
Practicals

**Traditional** ..... Gram staining  
ZN staining  
Applied Microbiology

**OSPE**..... Spotters (Extended spotters with questions)

1. Spotters (Extended spotters with questions) - 50 marks
2. Applied Exercises - 10 marks
3. Gram staining - 15 marks
4. ZN staining - 15 marks

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Total = 90

### Recommended Books :

1. Textbook of Microbiology for dental students , 5th ed.- C.P.Baveja
2. Practical Pathology & Microbiology for Dental students, 3rd ed. - C.P.Baveja

Book:

### Reference Book :

1. Textbook of Microbiology for dental students, 9th ed. -Ananthanarayan & Paniker's

## (UNIVERSITY MODEL QUESTION PAPER)

## MICROBIOLOGY

Time: 3 hours

Max. Marks: 70

Instructions: Attempt all the questions  
Illustrate your answers with suitable diagrams

## PART - I

## MODEL MULTIPLE CHOICE QUESTIONS:

(20 x 0.5 = 10)

1. Sterilization temperature and holding time for hot air oven in Microbiology Lab:  
a) 140°C x 1hour                      b) 150°C x 1 hour  
c) 160°C x 1hour                      d) 160°C x 2hour
2. Ziehl Neelsen stain is a type of:  
a) Differential stain                      b) Negative stain  
c) Special stain                      d) Simple stain
3. Which among the following is an enriched medium?  
a) Blood agar                      b) Mac-Conkey agar  
c) Muller Hinton agar                      d) Nutrient agar
4. Exaggerated response of immune system towards an antigen causing harm to the host is referred as  
a) Autoimmunity                      b) Hypersensitivity  
c) Immunodeficiency                      d) Tolerance
5. Which of the following immunoglobulin is involved in allergic reactions  
a) Ig A                      b) Ig E  
c) Ig G                      d) Ig M
6. The major chemical mediator involved in type 1 hypersensitivity  
a) Histamines                      b) Interleukins  
c) Interferons                      d) Lymphokines
7. A positive tuberculin skin test is an example of what type of hypersensitivity reaction?  
a) Type I                      b) Type II  
c) Type III                      d) Type IV
8. Human infection by Mycobacterium tuberculosis occurs commonly by  
a) Contact                      b) Ingestion  
c) Inhalation                      d) Inoculation
9. Morphology of Pneumococci  
a) Flame shaped diplococci                      b) Spherical  
c) Banana shaped                      d) Bunch of grapes
10. The following is a specific test to diagnose Syphilis:  
a) RPR test                      b) TPI test  
c) TRUST test                      d) VDRL test

**Microbiology**

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11. Metachromatic granules of *Corynebacterium diphtheria* can be stained by which of the following special stain:
- a) Albert's stain
  - b) Gram stain
  - c) Methylene blue stain
  - d) Zeihl Neelsen stain
12. Principle toxin responsible for gas gangrene is
- a) Alpha toxin
  - b) Beta toxin
  - c) Theta toxin
  - d) Delta toxin
13. Which among the following media is used for cultivation of fungi?
- a) Mac-Conkey's agar
  - b) Muller Hinton agar
  - c) Nutrient agar
  - d) Sabouraud's dextrose agar
14. The causative agent of oral thrush is:
- a) *Aspergillus flavus*
  - b) *Candida albicans*
  - c) *Cryptococcus neoformans*
  - d) *Histoplasma capsulatum*
15. The following hepatitis viruses are RNA viruses EXCEPT:
- a) Hepatitis A
  - b) Hepatitis B
  - c) Hepatitis C
  - d) Hepatitis D
16. Tzanck smear is used to diagnose:
- a) Small pox
  - b) Herpes simplex
  - c) Hepatitis-B
  - d) HIV
17. Rabies is identified by
- a) Cowdry A bodies
  - b) Guarneri bodies
  - c) Negri bodies
  - d) Paschen body
18. Which of the following are modes of transmission of HIV except:
- a) Blood products
  - b) Food
  - c) Needle prick
  - d) Sexual
19. Which is the infective form of the malaria parasite to man?
- a) Merozoite
  - b) Sporozoite
  - c) Trophozoite
  - d) Gametocyte
20. Which of the following eggs are NOT bile stained?
- a) *Ascaris lumbricoides*
  - b) *Hymenolepis nana*
  - c) *Trichuris trichiura*
  - d) *Taenia solium*

## **PART - II**

### **Section A**

#### **LONG ANSWER QUESTION:**

**(1x10 = 10)**

1. Classify Streptococci. Describe in detail pathogenesis and laboratory diagnosis of *Streptococcus pyogens*. (3+4+3)

#### **SHORT ANSWER QUESTIONS:**

**(3x5 =15)**

2. Autoclave - Structure, principle, mechanism and uses.
3. Anaphylaxis - Definition, mechanism, clinical features and treatment.
4. Non-sporing Anaerobes

### **Section B**

#### **LONG ANSWER QUESTION:**

**(1x10 = 10)**

5. Describe structure, pathogenesis, and modes of transmission and laboratory diagnosis of Human Immuno-deficiency Virus. (3+2+2+3)

#### **SHORT ANSWER QUESTIONS:**

**(3x5=15)**

6. Pathogenesis and lab diagnosis of Candidiasis.
7. Universal precautions to be followed in a health care setting.
8. Describe the life cycle of *Ascaris lumbricoides*.

### **Section C**

#### **VERY SHORT ANSWER QUESTIONS:**

**(5x2 =10)**

9. Koch's postulates.
10. Role of T and B cells in immune response.
11. Immunity-Definition& give one example for artificial passive &natural passive immunity.
12. Pulse polio immunisation programme.
13. Name four important standard precautions to be followed in health care setting.



## GENERAL AND DENTAL PHARMACOLOGY AND THERAPEUTICS

Number of hours prescribed by DCI		
Theory hours	Practical hours	Total
<b>Total: 70</b>	<b>Total: 20</b>	<b>90</b>

### a) GOAL:

The broad goal of teaching under graduate students in pharmacology is to inculcate rational and scientific basis of therapeutics keeping in view of dental curriculum and profession.

### b) OBJECTIVES:

At the end of the course the student shall be able to:

- i. Describe the pharmacokinetics and pharmacodynamics of essential and commonly used drugs in general and in dentistry in particular
- ii. List the indications, contraindications, interactions, and adverse reactions of commonly used drugs with reason
- iii. Tailor the use of appropriate drugs in disease with consideration to its cost, efficacy, and safety for individual and mass therapy needs
- iv. Indicate special care in prescribing common and essential drugs in special medical situations such as pregnancy, lactation, old age, renal, hepatic damage and immuno compromised patients
- v. Integrate the rational drug therapy in dental practice
- vi. Indicate the principles underlying the concepts of —Essential drugsl.

### c) SKILLS:

At the end of the course the student shall be able to:

- i. Prescribe drugs for common dental and medical ailments.
- ii. To appreciate adverse reactions and drug interactions of commonly used drugs.
- iii. Observe experiments designed for study of effects of drugs.
- iv. Critically evaluate drug formulations and be able to interpret the clinical pharmacology of marketed preparations commonly used in dentistry.

### d) INTEGRATION:

Practical knowledge of use of drugs in clinical practice will be acquired through integrated teaching with clinical departments.

**THEORY – 70 Hrs**

S. No	Topic name	Duration of classes	System Weightage
1.	General Pharmacology: a. Definitions: Pharmacology, drug, Pharmacy, sources of drugs with examples.	1 hr	11%
	b. Pharmacokinetics – ADME	2 hr	
	c. Routes of administration: oral, inhalation, intradermal, Subcutaneous, intramuscular, intravenous intrathecal, perineural & Newer drug regimes (Advantages and disadvantages with the examples of drugs administered).	1 hr	
	d. Pharmacodynamics: mechanism of action, factors modifying drug action	3 hr	
	e. Principles of drug therapy, Adverse drug reactions and important drug interactions, drug prescribing in pregnancy, children and elderly	3 hr	
	f. Rational therapeutics – P drug, essential drug list, prescription writing	1 hr	
2.	ANS drugs: Clinically used examples, their important pharmacological actions (which form the basis for the uses), clinical uses along with dental uses if any and specific adverse effects of – a. Sympathomimetics b. Sympatholytics - alpha blockers, Beta - blockers. c. Cholinomimetics. d. Anticholinergics.	1 hr 2 hr 2 hr 2 hr	10%
3.	CNS drugs. a. Clinically used opioid analgesics. b. Clinically used local anaesthetics. c. Clinically used muscle relaxants d. General anesthetics e. Preanaesthetic medication. f. Antidepressants, anxiolytics. g. Sedative & hypnotics h. Antiepileptics	 2 hr 2 hr 1 hr 2 hr 1 hr 2 hr 1 hr 1 hr	14%

**General and Dental Pharmacology and Therapeutics**

4.	CVS drugs		
	a. Cardiac glycosides	2 hr	7%
	b. Antianginal drugs	2 hr	
	c. Antihypertensives	2 hr	
	d. Diuretics & Antidiuretics	2 hr	
	e. Pharmacotherapy of shocks - anaphylactic, cardiogenic hypovolemic & Septic.	1 hr	
5.	Drugs acting on blood		
	a. Coagulants, anticoagulants, fibrinolytics, anti platelet drugs and styptics	4 hr	11%
	b. Hematinics: Iron preparation Vit.B12, Folic acid Vit. C	2 hr	
	c. Vit.D and calcium preparations.	1 hr	
	d. Hypolipidemic drugs	1 hr	
6.	Endocrines		
	a. Drugs used in diabetes mellitus	2 hr	7%
	b. Corticosteroids	2 hr	
	c. Thyroid disorders	1 hr	
7.	Chemotherapy		
	a. Sulfonamides, cotrimoxazole and quinolones	2 hr	18%
	b. Beta-lactum antibiotics	3 hr	
	c. Macrolides and aminoglycosides	2 hr	
	d. Broad spectrum antibiotics	2 hr	
	e. Antifungal and antiviral agents.	2 hr	
	f. Anti-protozoal drugs	1 hr	
	g. Anti-neoplastic drugs and immunosuppressants	2hr	
	h. Anti-tubercular and Anti-leprotic drugs	3 hr	
8.	Other drugs		
	a. Antihistamines and antiemetics	2 hr	15%
	b. Drugs used in bronchial asthma and cough	2 hr	
	c. Drugs used in peptic ulcer, diarrhoea and constipation	2 hr	
	d. Treatment of rheumatoid arthritis & gout	1 hr	
	e. vitamins	1 hr	
	f. drugs in migraine	1 hr	
	g. NSAIDs	2 hr	

9.	Dental Pharmacology		7%
	a. Fluoride pharmacology	1 hr	
	b. Antiseptics, astringents & Sialogogues c. Obtundents, Mummifying, agents, bleaching agents, dentrifices and disclosing agents.	2 hr	
	c. antibiotics in periododontal disease		
	d. antiplaque agents		
	Prevention and drug therapy of emergencies in dental practice.	2 hr	
	a. Seizures		
	b. Anaphylaxis		
	c. Severe bleeding		
	d. Status asthmaticus		

Sl. No	Topic	Must Know	Desirable to know	Nice to know
1.	Introduction to Pharmacology			✓
2.	Routes of Drug Administration	✓		
3.	Pharmacokinetics: Membrane transport and Absorption		✓	
4.	Pharmacokinetics: Bioavailability & First pass metabolism	✓		
5.	Pharmacokinetics: Distribution of Drugs			✓
6.	Pharmacokinetics: metabolism, Microsomal induction and inhibition	✓		
7.	Pharmacokinetics: Excretion of Drugs		✓	
8.	Pharmacokinetics: Kinetics of Elimination		✓	
9.	Pharmacodynamics: Mechanism of Drug Action			✓
10.	Pharmacodynamics: Dose Response Relationship	✓		
11.	Pharmacodynamics: Receptor Pharmacology			✓
12.	Factors Modifying Drug Action	✓		
13.	Adverse Drug Effects	✓		
14.	Rational Therapeutics	✓		

**General and Dental Pharmacology and Therapeutics**

15.	Autonomic Nervous System: General Consideration		✓	
16.	Cholinergic System of Drugs: Cholinergic Transmission & Cholinergic Agonist		✓	
17.	Cholinergic System of Drugs: Anticholinesterases	✓		
18.	Anticholinergic Drugs: Atropine	✓		
19.	Anticholinergic Drugs: Atropine Substitutes	✓		
20.	Drugs Acting on Autonomic Ganglia			✓
21.	Adrenergic System and Drugs I	✓		
22.	Antiadrenergic Drugs (Adrenergic Receptor Antagonists) : $\alpha$ Blockers	✓		
23.	Antiadrenergic Drugs (Adrenergic Receptor Antagonists) : $\beta$ Blockers	✓		
24.	Antihistaminics	✓		
25.	5-Hydroxytryptamine & its antagonists		✓	
26.	Drug therapy of Migraine		✓	
27.	NSAIDs	✓		
28.	Anti-rheumatoid Drugs			✓
29.	Anti-gout Drugs			✓
30.	Drugs for cough and Drugs for Bronchial Asthma I		✓	
31.	Introduction to hormones			✓
32.	Insulin	✓		
33.	Oral hypoglycaemic	✓		
34.	Thyroid Hormones and Thyroid Inhibitors	✓		
35.	Corticosteroids	✓		
36.	Skeletal Muscle relaxants: Peripherally Acting		✓	
37.	Local anesthetics	✓		
38.	General Anaesthetics	✓		
39.	Sedative Hypnotics	✓		

40.	Antiepileptic Drugs		✓	
41.	Antidepressants and Anti-anxiety Drugs			✓
42.	Opioid Analgesics and Antagonists	✓		
43.	Renin Angiotensin System and ACE Inhibitors		✓	
44.	Angiotensin Antagonists & Plasma Kinins		✓	
45.	Drugs for Heart Failure		✓	
46.	Anti-anginal Drugs	✓		
47.	Antihypertensive Drugs	✓		
48.	Diuretics		✓	
49.	Anti-diuretics			✓
50.	Haematinics	✓		
51.	Coagulants and Anticoagulants	✓		
52.	Fibrinolytics, Anti-fibrinolytics, Antiplatelet Drugs	✓		
53.	Hypolipidaemic Drugs		✓	
54.	Drugs for Peptic Ulcer	✓		
55.	Drugs for Emesis, Reflux and Digestive Disorders	✓		
56.	Drugs for Constipation and Diarrhea			✓
57.	Antimicrobial Drugs General Consideration, Sulfonamides and Cotrimaxazole and Quinolones	✓		
58.	Beta-Lactam Antibiotics: Penicillins	✓		
59.	Beta-Lactam Antibiotics: Cephalosporins	✓		
60.	Tetracyclines and Chloramphenicol	✓		
61.	Aminoglycoside Antibiotics	✓		
62.	Macrolide	✓		
64.	Anti-tubercular Drugs		✓	
65.	Treatment of Leprosy			✓
66.	Antifungal Drugs	✓		
67.	Antiviral Drugs			✓
68.	Anti-malarial Drugs			✓

## General and Dental Pharmacology and Therapeutics

69.	Antiamoebic and Other Antiprotozoal Drugs		✓	
70.	Antiseptics, Disinfectants	✓		
71.	Vitamins		✓	
72.	Drug interactions	✓		
73.	Dental Pharmacology	✓		
74.	Drugs for emergency conditions – anaphylactic shock, seizures, status asthmaticus, severe bleeding, diabetic ketoacidosis,	✓		

### f) PRACTICALS AND DEMONSTRATIONS: 20 HOURS

To familiarize the student with the methodology: prescription writing and dispensing.  
Rationale of drug combinations of marketed drugs.

#### 1. Pharmacy - 12hrs

1.	Dispensing pharmacy, prescription - parts and model prescription.
2.	Demonstration of common dosage forms used in clinical practice.
3.	Mouth wash- nystatin antifungal mouth wash, analgesic mouth wash, antiseptic mouth wash, anesthetic mouth wash, hydrogen peroxide
4.	Hemostatic dental powder
5.	Pulp mummifying paste
6.	Lugol's iodine solution
7.	Fluoridated and non fluoridated desensitizing tooth paste
8.	TOPICAL ORABASE-Steroids and amlexinox ANESTHETIC-Lidocaine and Bupivacaine SUCRALFATE ANTIFUNGAL-Cotrimoxazole ANTIVIRAL –Acyclovir Mucous patches with steroids

#### 2. Prescription writing–4hrs

1.	Case of allergic stomatitis
2.	Case of oral candidiasis
3.	Case of cellulitis
4.	Case of ANUG (Acute necrotizing ulcerative gingivitis)
5.	Case of periodontitis
6.	Case of dento alveolar abscess
7.	Case of post extraction bleeding

**3. Dosage forms–2hrs**

1.	Tablets
2.	Implants
3.	Capsules
4.	Injections
5.	Suppositories
6.	Enema
7.	Transdermal therapeutic systems

**4. Spotters – 4hrs (Part of OSPE stations)**

1.	Herpes labialis
2.	Ulcerative gingivitis/ Vincent's infection
3.	Oral candidiasis
4.	Aphthous ulcer/ ulcerative stomatitis
5.	Angular stomatitis
6.	Periodontal abscess
7.	Aspirin
8.	Ibuprofen
9.	Lignocaine
10.	Albendazole
11.	Amoxicillin
12.	Cotrimoxazole
13.	Hydrocortisone
14.	Adrenaline
15.	Omeprazole
16.	Metaclopramide
17.	Ranitidine
18.	Dexamethasone
19.	Clove oil
20.	Thiopentone
21.	Metronidazole



**Scheme of examination**

**1. Theory: 70 Marks**

Part I: 20 MCQs (20 X 0.5 = 10 Marks)

Part II:

Section A: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)

Section B: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)

Section C: 5 VSAQs (5 X 2 = 10 Marks)

Theory Internal assessment: 10 marks

Viva voce: 20 marks

**Total = 100 Marks**

**2. Practical examination: 90 Marks**

Practical Internal Assessment – 10 Marks

**Total – 100 Marks**

**Blueprint of theory paper:**

MCQ can be asked from any topic and it will be from the must know area only.

**Section A: GENERAL PHARMACOLOGY AND SYSTEMIC PHARMACOLOGY  
for 25 marks**

**Section B: CHEMOTHERAPY, G.I.T, DENTAL PHARMACOLOGY AND  
MISCELLANEOUS for 25 marks**

**MATRIX - 1**

SL.NO	TOPICS SECTION A	LAQ [1X10]	SAQ [3X5]
1	PERIPHERAL NERVOUS SYSTEM		
2	CENTRAL AND AUTONOMIC NERVOUS SYSTEM	1	
3	BLOOD		1
4	CARDIOVASCULAR SYSTEM		1
5	HORMONES		
6	GENERAL PHARMACOLOGY		1
	<b>SECTION B</b>		
1	ANTIBIOTICS	1	
2	GASTROINTESTINAL SYSTEM		1
3	DENTAL PHARMACOLOGY		1

4	CHEMOTHERAPY OF MALIGNANCY & IMMUNOSUPPRESSANTS		1
5	AUTOCIDS AND RESPIRATORY SYSTEM		

MATRIX - 2

SL.NO	TOPICS SECTION A	LAQ [1X10]	SAQ [3X5]
1	PERIPHERAL NERVOUS SYSTEM		
2	CENTRAL AND AUTONOMIC NERVOUS SYSTEM		1
3	BLOOD		1
4	CARDIOVASCULAR SYSTEM	1	
5	HORMONES		1
6	GENERAL PHARMACOLOGY		
	<b>SECTION B</b>		
8	ANTIBIOTICS	1	
9	GASTROINTESTINAL SYSTEM		1
11	DENTAL PHARMACOLOGY		1
12	CHEMOTHERAPY OF MALIGNANCY & IMMUNOSUPPRESSANTS		
	AUTOCIDS AND RESPIRATORY SYSTEM		1

SECTION C [ VSAQ & MCQ]	VSAQ 5 X 2 = 10	MCQ 20 X 0.5 = 10
PERIPHERAL NERVOUS SYSTEM	5 VSAQs	1
CENTRAL AND AUTONOMIC NERVOUS SYSTEM		3
BLOOD		2
CARDIOVASCULAR SYSTEM		2
HORMONES		2
GENERAL PHARMACOLOGY		1
AUTOCIDS AND RESPIRATORY SYSTEM		2
ANTIBIOTICS		2
GASTROINTESTINAL SYSTEM		1
MISCELLANEOUS		1
CHEMOTHERAPY OF MALIGNANCY & IMMUNOSUPPRESSANTS		1
DENTAL PHARMACOLOGY		2

In view of the pharmacology syllabus for dental students, importance to be laid to teach pharmacology for dental practice, hence LONG QUESTION IN SECTION A TO BE ASKED FROM CNS - opioid analgesics, local anaesthetics and NSAIDs. long question from section B to be asked from beta lactam antibiotics, quinolones, cephalosporins, sulfonamides, cotrimoxazole, broad spectrum antibiotics, aminoglycosides and macrolides.

In view of teaching pharmacology for dental practice, EXCESS WEIGHTAGE OF MARKS TO BE GIVEN TO THE FOLLOWING TOPICS- NSAIDs, local anaesthetics, Opioids, General anaesthetics, Pre anaesthetic medication, Beta blockers, Anticholinergics, Antihistaminics, Status asthmaticus or epilepticus or myocardial infarction or anaphylactic shock or any emergency condition treatment, Drugs for angina and hypertension, Dental implication of anticoagulants and antiplatelets, Styptics, insulin and antidiabetic drugs, adverse effect and uses of steroids, use of dentifrices, obtundents, astringents, fluoride therapy, anti caries drugs, mummifying agents, antiseptics and disinfectants, antiplaque agents in dentistry and treatment of dental infections.

**Blueprint of Practicals:**

Conventional – Prescription writing & Clinical pharmacology practicals – 40 Marks

OSPE stations: 8 Hrs (50 marks)

1. Various administration techniques regarding the routes.
2. Instruments- Analgesiometer, convulsimeter, hot plate apparatus, tail flick apparatus
3. Charts demonstrating drug action, pharmacokinetics & Pharmacodynamics

**j) Recommended Books:**

1. Essentials of Pharmacology for dentistry by K.D.Tripati, 3<sup>rd</sup> edition
2. Pharmacology for dental students by Padmaja Udayakumar, 3<sup>rd</sup> edition
3. Preparatory Manual for medical students by Tara Shanbag, 2<sup>nd</sup> edition

**MODEL QUESTION PAPER  
I BDS EXAMINATION**

**GENERAL & DENTAL PHARMACOLOGY & THERAPEUTICS**

**Time : 3 hours**

**Max. Marks: 70**

**Instructions: Attempt all the questions  
Illustrate your answers with suitable diagrams**

**PART - I**

**MODEL MULTIPLE CHOICE QUESTIONS: (20 x 0.5 = 10)**

1. Placebo is an
  - a) Inert substance
  - b) Drug
  - c) Prolong
  - d) An active metabolite
2. High plasma protein binding:
  - a) Increases volume of distribution of the drug
  - b) Facilitates glomerular filtration of the drug
  - c) Minimizes drug interactions
  - d) Generally makes the drug long acting
3. Pilocarpine reduces intraocular tension in open angle glaucoma by:
  - a) Contracting sphincter pupillae
  - b) Increasing tone of ciliary muscle
  - c) Reducing aqueous formation
  - d) Enhancing uveo-scleral outflow
4. Select the ultrashort acting cardio selective beta adrenergic blocker
  - a) Bisoprolol
  - b) Timolol
  - c) Sotalol
  - d) Esmolol
5. Low doses of aspirin prolong bleeding time by selectively inhibiting synthesis of the following mediator in the platelets:
  - a) Thromboxane A<sub>2</sub>
  - b) 5-Hydroxytryptamine
  - c) Platelet activating factor
  - d) Prostacyclin
6. Glucocorticoids if excess causes
  - a) Muscle wasting
  - b) hypoglycemia
  - c) Hypotension
  - d) decreases acid secretion
7. The benzodiazepine used as an anaesthetic is
  - a) Diazepam
  - b) Lorazepam
  - c) Midazolam
  - d) Oxazepam
8. Which of the following antihypertensive is not given in pregnancy?
  - a) Enalapril
  - b)  $\alpha$  Methyldopa
  - c) Labetalol
  - d) Nifedipine
9. Codeine is used clinically as:
  - a) Analgesic
  - b) Antitussive
  - c) Antidiarrhoeal
  - d) All of the above

10. Which sensation is blocked first by low concentrations of a local anaesthetic:
  - a) Pain
  - b) Temperature
  - c) Touch
  - d) Deep pressure
11. Furosemide acts by inhibiting the following in the renal tubular cell:
  - a)  $\text{Na}^+ - \text{K}^+ - 2\text{Cl}^-$  cotransporter
  - b)  $\text{Na}^+ - \text{Cl}^-$  symporter
  - c)  $\text{Na}^+ - \text{H}^+$  antiporter
  - d)  $\text{Na}^+ \text{ K}^+$  ATPase
12. The daily dose of elemental iron for maximal haemopoietic response in an anaemic adult is:
  - a) 30 mg
  - b) 100 mg
  - c) 200 mg
  - d) 500 mg
13. Tranexaemic acid is a specific antidote of:
  - a) Fibrinolytic drugs
  - b) Organophosphates
  - c) Barbiturates
  - d) Heparin
14. For healing duodenal ulcer the usual duration of  $\text{H}_2$  blocker therapy is:
  - a) 4 weeks
  - b) 6 weeks
  - c) 8 weeks
  - d) 12 weeks
15. The first choice drug for nonsteroidal anti-inflammatory drug associated gastric ulcer is:
  - a) Omeprazole
  - b) Misoprostol
  - c) Ranitidine
  - d) Sucralfate
16. Surgical antibiotic prophylaxis for clean elective surgery started just before operation should be continued for:
  - a) One day
  - b) Three days
  - c) Five days
  - d) Seven days
17. Benzathine penicillin injected once every 4 weeks for 5 years or more is the drug of choice for:
  - a) Agranulocytosis patients
  - b) Prophylaxis of bacterial endocarditis in patients with valvular defects
  - c) Prophylaxis of rheumatic fever
  - d) Treatment of anthrax
18. Rifampin kills tubercle bacilli by:
  - a) Binding to mycobacterial DNA dependent RNA polymerase
  - b) Inhibiting mycobacterial DNA synthesis
  - c) Inhibiting synthesis of mycolic acids in mycobacteria
  - d) Damaging mycobacterial mitochondria

19. Mesna is administered with cyclophosphamide and ifosfamide to:
  - a) Potentiate their cytotoxic action
  - b) Retard their renal excretion
  - c) Block their emetic action
  - d) Ameliorate cystitis caused by them
20. Which of the following is a bleaching agent
  - a) Hydrogen peroxide
  - b) clove oil
  - c) tannic acid
  - d) sodium bicarbonate

## PART - II

### Section A

**LONG ANSWER QUESTION:** (1X10=10)

1. Classify Opioid Analgesics. Write in detail the pharmacological actions, therapeutic uses, contraindications and adverse effects of morphine. (2+8)

**SHORT ANSWER QUESTIONS:** (5x3=15)

2. Classify Anticoagulants. Write the adverse effects and uses of warfarin.
3. Write down the treatment of angina pectoris.
4. Write about the methods for prolonging drug action.

### Section B

**LONG ANSWER QUESTION:** (1X10=10)

5. Enumerate quinolones. Describe briefly the mechanism of action, adverse effects and uses of ciprofloxacin. (3+7)

**SHORT ANSWER QUESTIONS:** (5x3=15)

6. Write short notes on oral rehydration therapy
7. List out the topical antifungal agents along with their uses
8. Name few styptics and their uses.

### Section C

**VERY SHORT ANSWER QUESTIONS:** (5x2=10)

9. Name two drugs used as bleaching agents
10. List four drugs used in treatment of AIDS
11. Write the rationale for adding adrenaline with lignocaine for anaesthesia.
12. List four drugs used in treatment of migraine.
13. Write four important adverse effects of steroid therapy

## DENTAL MATERIALS

Number of hours prescribed by DCI		
Theory hours	Practical hours	Total
<b>Total: 80</b>	<b>Total: 240</b>	<b>320</b>

### Goal of the Subject:

To inculcate understanding of the basic chemical and physical properties of all the restorative and auxiliary Dental materials as related to the manipulation and to understand the behavior of such materials. It also enables the student to understand the criteria of selection of dental materials for situations and to discriminate between facts and propaganda with regards to the claim of manufacturers.

### Specific Learning Objectives:

The student would be able to

- Understand the evolution of materials from history till date, which are used commonly in dental restorative and rehabilitative procedures and also appreciate the characteristics of each material in their properties and their performance standards in oral environment.
- To understand and apply the knowledge in the use of various auxiliary and restorative dental materials and contouring/finishing instruments and laboratory equipments involved in the fabrication of restorations and prosthesis.

### Theory: Hours - [40 hours in total]

SN	Topic	Hours	MDN	Weightage
1.	Development of dental materials Governing bodies to control standards of dental materials Classification of dental materials	1	N	2.5%
2.	Important mechanical, physical properties like modulus of elasticity, Strength, Fracture resistance, Toughness, Resilience, Hardness, Proportional limit, Physical properties like - Colour science, Metamerism, Shade selection, Creep, Sag, Flow, Viscosity, Principles of adhesion, Surface tension, Wetting, Endurance Limit, Fatigue failure, Tarnish and Corrosion, Galvanism Biocompatibility of dental materials	4	M  M D	10%
3.	Impression materials – Ideal requirements, classification, Composition, Properties and technical considerations including working time, mixing time and setting time of each material with advantages and disadvantages	5	M	12.5%

4.	Gypsum products – Origin, manufacture, Classification, Uses, Properties, Setting characteristics including expansion, Working time, mixing time, setting time, modifiers, Die materials- types and uses and Electroformed dies	4	M  N N	10%
5.	Waxes – Definition, origin, Composition, Classification and uses of each	1	M	5%
6.	Polymers chemistry and Denture base resins – Composition, Properties, Uses, Technical considerations – working time, setting time, polymerization [chemistry and cycles], procedure of polymerization, types of curing techniques, Tissue conditioners and soft liners	4	M   N	7.5%
7.	Metals and Alloys – Solidification and microstructure of metals, equilibrium phases, eutectic and peritectic mixture, Classification of alloys in dentistry, noble and base metal including metal ceramic alloys classification and uses, advantages and disadvantages	3	N	10%
8.	Ceramics – History, Classification, Basic composition, firing temperature, Techniques of fabrication, Mechanical behavior of various types, methods of strengthening dental porcelain, metal ceramic systems, castable and CAD/CAM ceramics	4	M	12.5%
9.	Finishing and polishing materials – Principle of cutting and grinding and polishing. Trimming, finishing and polishing materials used for prosthetic and restorative materials including airrotor abrasives for denture base resin, metals and ceramics	2	M	5%
10.	Maxillofacial materials	1	D	5%
11.	Dental Casting procedure	4	M	12.5%
12.	Implant Biomaterials	2	M	7.5%
	<b>Armamentarium</b> [Integrated with Armamentarium module]	5	M	



Conservative Dentistry				
S. No	TOPIC	SYSTEM WEIGHTAGE	NUMBER OF HOURS	MUST KNOW/ DESIRABLE TO KNOW/ NICE TO KNOW
1	Silver amalgam and mercury	13.3%	6	M
2	Glass ionomer cements	6.6%	3	M
3	Light cure composite resin restorations	13.3%	5	M
4	Acid etchant and Dentin Conditioner	6.6%	3	M
5	Bonding agents	10%	3	M
6	Direct Gold	6.6%	3	D
7	Cast restorative materials	10%	3	D
8	Pulp protection materials- definition, objectives, ideal requirements and classification	6.6%	4	M
9	Zinc oxide eugenol cement	6.6%	2	M
10	Zinc polycarboxylate cement	6.6%	3	M
11	Zinc phosphate cement	6.6%	3	M
12.	Calcium hydroxide and mineral trioxide aggregate.	6.6%	3	M

**Practicals: Hours – 240****Specific Learning Objectives:**

The student will be able to

Identify and manipulate common dental materials used in restoration and replacement and auxiliary dental materials and explain their relevance and significance with special mention on their characteristics.

Manipulate commonly used dental materials like gypsum products types II, III and IV, impression compound, Alginate, Elastomer, zinc oxide eugenol impression paste, denture base resins to a workable consistency with standard operating instructions.

*All the hours given below are inclusive of the demonstration hours by the faculty. Necessary theory is briefed during the demonstration.*

S. No	Exercise	Weightage	Hours	MDN
1	Art work using plaster of paris	2%	1	M
2	Manipulate Impression compound and making an impression on an edentulous model using non perforated impression trays	8%	3	M
3	Manipulate model plaster and pour cast in the impression	5%	2	M
4	Manipulate Alginate and making an impression on an edentulous model using perforated impression trays	4%	2	M
5	Manipulate dental stone and pour cast in the impression	2%	2	M
6	Manipulate self cure acrylic resin and fabricate a special tray with spacer and fabricate a handle for the same [dough technique on maxillary cast]	3%	2	M
7	Manipulate self cure acrylic resin and fabricate a special tray without spacer and fabricate a handle for the same [sprinkle on technique on mandibular cast]	2%	2	M
8	Use contouring and finishing materials to finish the acrylic special trays short of sulcus.	2%	2	M
9	Manipulate greenstick compound on a lubricated acrylic model to get used to manipulation of material	8%	2	M
10	Manipulate zinc oxide impression paste and make impression with the special tray.	4%	2	M
11	Use beading and boxing wax to create artistic portion of cast on the secondary impression	4%	2	M
12	Manipulate Putty and light body and making an impression on an edentulous model	2%	2	D
13	Dental Laboratory visit – to understand the steps involved in fabrication of - metal ceramic restorations. [casting procedure and ceramic build up]	2%	2	D
14	Clinical impression on a simulated patient [volunteer] using alginate impression material and pouring a cast for the same.	2%	4	D

## Dental Materials

15.	Dental Materials – Conservative Manipulation of restorative materials- Silver amalgam, Glass ionomer cement, zinc phosphate, zinc polycarboxylate, Zinc oxide eugenol	50%	20	M
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### Scheme of examination

#### 1. Theory: 70 Marks

Part I: 20 MCQs (20 X 0.5 = 10 Marks)

Part II

Section A: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)

Section B: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)

Section C: 5 VSAQs (5 X 2 = 10 Marks)

Theory Internal assessment: 10 marks

Viva voce: 20 marks

Total = 100 Marks

#### 2. Practical examination: 90 Marks

Practical Internal Assessment – 10 Marks

Total – 100 Marks

### BLUEPRINT OF QUESTION PAPER

1. Section A: Prosthodontics related materials for 25 marks
2. Section B: Restorative Dentistry related materials for 20 marks and Orthodontic related materials for 5 marks

Multiple Choice Questions 20 X 0.5=10marks – 5 conservative and 5 prostho

Very Short Answer Questions 5x2 =10marks - 3prostho 2 conservative and ortho (or)  
2 prostho 3 conservative and ortho

The questions can be distributed as follows: please refer to Question bank and syllabus

70 % should be from the Must know areas – Essays and Short Notes

20 % should be from Desirable to know areas – All [Essays should not be asked]

10 % should be from Nice to know areas – All [Essays should not be asked]

MCQs should be from must know areas

MATRIX [ One of the following patterns can be adopted by the paper setter]

*[Please correlate with syllabus for weightage]*

**Pattern -1**

**Section A: If LAQ in from Impression Materials & Gypsum products & Dental Investments :**

Categ	TOPICS	Section A		25 MARKS
		LAQ	SAQ	
1	Introduction including ADA, Basic Properties [physical, mechanical and biological properties of dental materials			
2	Impression material [Elastic and non elastic materials] and Gypsum products and Dental investments	1	1	15
3	Metals and alloys used in dentistry, including solidification shrinkage, finishing and polishing materials, soldering and welding and Casting procedures		1	5
4	Dental Ceramics and Denture base resins		1	5
		1	3	25

**Pattern -2**

**Section A: If LAQ is from Dental Ceramics and Denture base resins, Dental resin composite material:**

Categ	TOPICS	Section A		25 MARKS
		LAQ	SAQ	
1	Introduction including ADA, Basic Properties [physical, mechanical and biological properties of dental materials		1	5
2	Impression material [Elastic and non elastic materials] and Gypsum products and Dental investments		1	5
3	Metals and alloys used in dentistry, finishing and polishing materials, soldering and welding and Casting procedures		1	5
4	Dental Ceramics and Denture base resins, Dental resin composite material.	1		10
		1	3	25

**Section B – Conservative Dentistry****If the pattern follows category 1**

Categ	TOPICS	Section A		25 MARKS
		LAQ	SAQ	
1	Silver amalgam and mercury	1		10
2	Light cure composite resin restorations, Acid etchant and Dentin Conditioner, Bonding agents		1	5
3	Direct Gold, Cast restorative materials		1	5
4	Pulp protection materials- definition, objectives, ideal requirements and classification			
5	Zinc oxide eugenol cement, Zinc polycarboxylate cement, Zinc phosphate cement, Calcium hydroxide and mineral trioxide aggregate, Zinc polycarboxylate cement, Glass ionomer cements		1	5

**Section -B Conservative dentistry****If the pattern follows category 2**

Categ	TOPICS	Section A		25 MARKS
		LAQ	SAQ	
1	Silver amalgam and mercury		1	5
2	Light cure composite resin restorations, Acid etchant and Dentin Conditioner, Bonding agents	1		10
3	Direct Gold, Cast restorative materials			
4	Pulp protection materials- definition, objectives, ideal requirements and classification		1	5
5	Zinc oxide eugenol cement, Zinc polycarboxylate cement, Zinc phosphate cement, Calcium hydroxide and mineral trioxide aggregate, Zinc polycarboxylate cement, Glass ionomer cements		1	5

**Part I & Section C – Pattern 1**

Categ	TOPICS	Section C		Marks
		MCQ 0.5mk	VSAQ 2mk	
1	Introduction including ADA, Basic Properties [physical, mechanical and biological properties of dental materials, wrought wires, soldering and welding	4	1	4
2	Impression material [Elastic and non elastic materials] and Gypsum products and Dental investments Dental Cements	6	1	5
3	Metals and alloys used in dentistry, finishing and polishing materials, soldering and welding and Casting procedures Dental amalgam	4	2	6
4	Dental Ceramics and Denture base resins, Resin composite material	6	1	5
		<b>20</b>	<b>5</b>	<b>20</b>

**Part I & Section C – Pattern 2**

Categ	TOPICS	Section C		Marks
		MCQ 0.5mk	VSAQ 2mk	
1	Introduction including ADA, Basic Properties [physical, mechanical and biological properties of dental materials, wrought wires, soldering and welding	4	1	4
2	Impression material [Elastic and non elastic materials] and Gypsum products and Dental investments Dental Cements	8	2	8
3	Metals and alloys used in dentistry, finishing and polishing materials, soldering and welding and Casting procedures, Dental amalgam	4	1	4
4	Dental Ceramics and Denture base resins, dental resin composite	4	1	4
		<b>20</b>	<b>5</b>	<b>20</b>

**Blueprint for practicals : OSPE (90 MARKS)**

Station	Evaluated Skills	Weightage	Marks
1	Armamentarium / any –cons/prostho/ortho	6%	5 marks
2	Applied aspects of properties - any - cons/prostho/ortho	6%	5 marks
3	Impression material	11%	5 marks
4	Gypsum products	11%	5 marks
5	Waxes / cements and composite	11%	5 marks
6	Casting / amalgam	4%	5 marks
7	Finishing and Polishing materials	11%	5 marks
8	Denture base resins	11%	5 marks
9	Implants / wrought wires	4%	5 marks
10	Root canal filling instruments and materials		5 marks
11	Manipulation of one of the above mentioned materials* 1 prostho 1 cons	22%	40 marks

**Recommended Books:** The following books are mandatory and the student is supposed to refer other books whenever recommended or advised for selected reading.

Phillip's Science of Dental Materials	Kenneth J Anusavice	Twelfth	Saunders	WB Saunders Co, USA	35 USD	2013
Restorative Dental materials	Robert Craig	Eleventh	Mosby	CV Mosby USA	495 INR	2002

**MODEL QUESTION PAPER  
I BDS EXAMINATION  
DENTAL MATERIALS**

**Time: 3 hours**

**Max. Marks: 70**

**Instructions: Attempt all the questions  
Illustrate your answers with suitable diagrams**

**PART - I**

**MODEL MULTIPLE CHOICE QUESTIONS:**

**(20 x 0.5 = 10)**

1. The most mucostatic impression material to be used where least pressure should be exerted would be
  - a. Impression Plaster
  - b. Zinc oxide eugenol impression material
  - c. Soft Wax
  - d. Low fusing compound
2. The investment material of choice to be used for a base metal alloy would be
  - a. Gypsum bonded
  - b. Phosphate bonded
  - c. Ethyl Silicate bonded
  - d. Any of the above
3. The temperature lag between gelation and liquefaction time - hysteresis is crucial in
  - a. Alginate
  - b. Cold mould seal
  - c. Agar
  - d. Gelatin
4. The metal framework for a cast partial denture can be fabricated by all of the following alloys except
  - a. Type III gold alloys
  - b. Type IV gold alloys
  - c. Titanium alloys
  - d. Cobalt Chromium alloys
5. Physical stages of curing in denture base resins are important as it helps in
  - a. Setting the curing temperature
  - b. Setting the curing cycle
  - c. Manipulation of the material
  - d. All of the above
6. The area below the stress strain curve within proportional limit is described as
  - a. Toughness
  - b. Resilience
  - c. Modulus of elasticity
  - d. Elastic Limit
7. Hardness of metallic objects are best tested with
  - a. Brinell's method
  - b. Vickers method
  - c. Rockwell's method
  - d. Knoop's method



## Dental Materials

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8. The perception of colour in bright light is called as
  - a. Metamerism
  - b. Bezold brucke effect
  - c. Saturation
  - d. Raman effect
9. The personnel at risk with mercury vapour hazard is
  - a. The dentist
  - b. The Patient
  - c. The assistant
  - d. All are at equal risk
10. Impression Compound is used in all of the following except
  - a. Primary Impression
  - b. Secondary Impression
  - c. Border Moulding
  - d. As a tray for wash impression
11. Glass ionomer cements have anticariogenic property due to
  - a. presence of calcium
  - b. release of flouride
  - c. bonding to enamel and dentin
  - d. all of the above
12. Dental varnish is applied at what depth of the cavity
  - a. less than 2mm
  - b. more than 2mm
  - c. 0.5 mm beyond the DEJ
  - d. pin point pulp exposure
13. Which generation dentin bonding agents follow the total etch concept.
  - a. first generation
  - b. fourth generation
  - c. sixth generation
  - d. second generation
14. Role of zinc stearate in Zinc oxide eugenol
  - a. to reduce the brittleness of cement
  - b. acts as an accelerator
  - c. plasticizer
  - d. b and c
15. Calcium hydroxide aids in formation of
  - a. tertiary dentin
  - b. secondary dentin
  - c. intertubular dentin
  - d. all of the above
16. The main purpose of trituration is
  - a. to coat the silver alloy particles with mercury
  - b. to dissolve all the particles with mercury
  - c. to reduce the size of alloy particles
  - d. none of the above

17. Which of the following is not resin matrix
  - a. BISGMA
  - b. UDMA
  - c. HEMA
  - d. a and b
18. What is a cast restoration?
  - a. direct restoration
  - b. incrementally built up
  - c. indirect restoration
  - d. machined restoration
19. Ph of Zinc phosphate at the time of insertion is
  - a. 2
  - b. 9
  - c. 5.5
  - d. 6.5
20. Zinc polycarboxylate adheres to the tooth structure
  - a. mechanically
  - b. chemically
  - c. physically
  - d. all the above

## **PART – II**

### **Section A**

#### **LONG ANSWER QUESTION:**

**1X10=10**

1. Explain basic composition of Dental Ceramics? [2]

Classify Dental ceramics based on their firing temperature [3]

Mention the Composition of conventional Ceramics. Add a note of the modifiers and methods of strengthening Ceramics. [5]

#### **SHORT ANSWER QUESTIONS:**

**3X5=15**

2. Classify Casting Failures

3. Define Malleability and Ductility [2]

Applications of the above properties in Dental materials with examples [3]

4. Discuss any four potential hazardous dental materials to the dentist or the laboratory personnel.

**Section B**

**LONG ANSWER QUESTION**

**1X10=10**

5. Classify Glass Ionomer Cement. Write the composition and the setting reaction of type 2 glass ionomer cement. Justify the use of paper pad and agate spatula for its manipulation. [2+6+2=10].

**SHORT ANSWER QUESTIONS:**

**3X5=15**

6. Define welding. Explain spot welding.
7. What is dental amalgam? Explain the setting reaction of high copper silver amalgam.
8. Classify resin composite material based on filler size. what are the advantage of very fine filler particle.

**Section C**

**VERY SHORT ANSWER QUESTIONS:**

**5x2=10**

9. Mention the activators in heat cure and self cure acrylic resins
10. Give an example where hygroscopic expansion in gypsum products
11. Compare any two features of soldering and welding.
12. Write the composition of dental varnish.
13. Enlist two important physical property of Gold foil.

**PRECLINICAL PROSTHODONTICS**

Number of hours prescribed by DCI		
Theory hours	Practical hours	Total
<b>Total: 25</b>	<b>Total: 200</b>	<b>225</b>

**Goal of the Subject:** To develop the preclinical skills required to fabricate a complete denture, removable partial denture and fixed partial denture.

**Theory: 25 hours**

**Specific Learning Objectives:** The student will be able to

- Understand the importance of pre clinical skill sets as it would enable him to identify the mistakes done by a technician when the student is out in practice
- To be competent to fabricate a removable complete and partial dentures.
- To understand basic principles of tooth preparation and to prepare commonly encountered preparations like Molar – full veneer crowns and incisors – all ceramic crowns

**Theory: Hours - [40 hours in total]**

SN	Topic	No of hours	Weightage	MDN
1	Evolution of prosthodontics	1	2 %	M
2	Branches of Prosthodontics and importance of replacement			
3	Anatomical Landmarks of maxillary and mandibular denture bearing area [description, structures related and clinical significance] in lab hours	3	18 %	M
4	Parts of a denture – Complete denture	1	2 %	M
5	Steps in complete denture fabrication with comparison of clinical and dummy work steps	1	2 %	M
6	Special tray, specification and spacer designs and trial denture bases-importance and materials [with demonstration in lab hours of first year]	1	6 %	M
7	Occlusion rim specifications, arch resorption pattern and clinical importance of landmarks used in fabrication of occlusion rims. [with demonstration in lab hours]	1	5 %	M

8	Articulators – concepts, need for the instrument, theory of occlusion in three point articulator, parts of the articulator, advantages, disadvantages, limitations [in theory and lab hours]	1	5 %	M
9	Principles of tooth arrangement [with demonstration and videos in lab hours]	3	30 %	M
10	Principles of tooth arrangement	2	8 %	M
11	Occlusion in natural and artificial dentition with occlusion in removable complete dentures only centric and maximum intercuspation with curves of occlusion	1	3 %	M
12	Flasking and processing Demonstration with theory	1	4%	M
13	Classification of partially edentulous arches	1	2%	M
14	Components of RPD	1	2 %	D
15	Demonstration of components of RPD [Lab hours]	2	2 %	D
16	Components of FPD	1	3 %	M
17	Relining and Rebasing	2	2 %	D
18	Principles of tooth preparation all ceramic and full veneer	2	4%	M

**Practicals – 300hours**

**Specific Learning Objectives:** The student will be able to

**Complete denture**

1. understand the steps and sequence in complete denture construction
2. Perform all laboratory procedures related to complete denture construction from occlusion rim to processing and finishing according to standard criteria of performance.
3. Special emphasis given to the arrangement of teeth based on the principles.

**Removable partial denture**

4. Fabricate upper and lower removable partial denture on the clinical impression made during the early clinical exposure.

**Fixed partial denture**

5. Tooth preparation on plaster dies for all ceramic crown on an anterior poured from rubber moulds.
6. Tooth preparation on plaster dies for full veneer crown on a posterior tooth poured from rubber moulds.

*It should be noted that the Preclinical Prosthodontic hours start from the first year.*

*Three sets of teeth arrangement for complete denture - CD, one set of CD processing, one set of removable partial denture processed and two teeth preparations one on molar and the other on incisor on a plaster model.*

#### Pre Clinical Practicals Syllabus

SN	Topic	Weightage	Hours	MDN
	<b>FIRST YEAR</b>	60 hours		
1	Outline Anatomical Landmarks of maxillary and mandibular denture bearing area and colour them with contrasting colours	2%	4	M
2	Maxillary and Mandibular cast preparation	2%	4	M
3	Temporary Denture base fabrication over Cast	2%	4	M
4	Occlusion rims over Trial Denture base	2%	6	M
5	Articulation of the occlusion rims	4%	10	M
6	Teeth arrangement for Class I ridge including finishing	10%	24	M
7	Teeth arrangement set up finished with festooning	2%	8	D
8	Processing	16%	42	M
9	Deflasking Finishing and polishing of Complete Denture	4%	10	M
10.	Deflasking Finishing and polishing of Complete Denture	4%	10	M
11.	Teeth arrangement – 2 including finishing	12%	40	M
12.	Teeth arrangement – 3 including finishing	12%	40	M
13.	Teeth arrangement for Removable Partial Denture [RPD]	2%	10	M
14.	Sealing and Dearticulation	2%	4	M
15.	Flasking maxillary cast in conventional method	2%	8	M
16.	Flasking mandibular in reverse flasking method	2%	6	M
17.	Dewaxing	2%	4	M
18.	Packing the investment mould with denture base resin	2%	6	M
19.	Curing	3442%	8	M

**Preclinical Prosthodontics**

20.	Deflasking, finishing and polishing RPD	2%	6	M
21.	Pouring molar and incisor plaster dies from rubber moulds	2%	4	M
22.	All ceramic preparation in a plaster Central incisor die	2%	6	M
23.	Full veneer preparation in a plaster molar die	2%	6	M
24.	OSCE training	6%	13	M
25.	Practical Formative Assessment		25	M

**EVALUATION OF THE PROGRESS AND PERFORMANCE OF THE CANDIDATE BASED ON**

- Formative**  
Faculty / Self evaluation using evaluation criteria in the observation notebook
- Summative**  
Evaluation in Practical Examination

**Maximum Marks** **100 marks**

Performance during practical examination - 60 marks

Part I – Teeth arrangement exercise in CI I ridge relationship 30 marks

Part II – OSPE [15 stations x 2 marks] 30 marks

Viva 20 marks

Internal Assessment 20 marks

**Practical Syllabus**

S. No	Evaluation of Skills	Predominant Domain	Marks
1	Identification of Anatomical landmarks and importance	C-Application	5.5%
2	Impression trays and Impressions	C-Application	5.5%
3	Occlusion rims uses and Construction and selection of teeth	C-Application	5.5%
4	Articulators Articulation types, uses and theories	C-Understanding	5.5%
5	Laboratory procedures	P – Perform	5.5%
6	Repair and Rebasing	C-Understanding	5.5%
7	Classification, Kennedy's, edentulous ridge relationship	C-Understanding	5.5%
8	Components of RPD	Recall	5.5%

9	Components of FPD	Recall	5.5%
10	Teeth arrangement on a three point articulator	P – Perform	50%

**Recommended Books:**

Book	Author	Edition	Publications	Address	year
Preclinical Prosthodontics	Lakshmi	First	Elsevier publications	Reed Elsevier India Publications	2010
Laboratory procedures for complete dentures	Rudd Morrow	Second	Mosby	CV Mosby, USA	1986
Laboratory procedures for removable partial dentures	Rudd Morrow	Second	Mosby	CV Mosby, USA	1986
Fundamentals of tooth preparation	Herbert T Shillingburg		Quintessence	Quintessence Publishing company	1986



**PRECLINICAL CONSERVATIVE DENTISTRY**

Number of hours prescribed by DCI		
Theory hours	Practical hours	Total
<b>Total: 25</b>	<b>Total: 200</b>	<b>225</b>

**THEORY - TOTAL HOURS - 40 HOURS**

S.NO	TOPIC	NO. OF HOURS	SYSTEM WEIGHTAGE IN % (BASED ON MDN)
1	Definition and objectives of Conservative Dentistry, Tooth numbering system, Review of Tooth Anatomy.	2	2.25
2	Dental Caries › Definition › Etiology › Pathogenesis › Classifications; emphasis on GV Blacks classification › Histopathology	5	12.5
3	Tooth preparation › Definition › Types of preparation › Conventional cavity Vs Conservative tooth preps › Cavity nomenclatures › Basic principles in cavity preparation › Comparison of basic principles for various restorative materials	8	20
4	Silver Amalgam restorations Cavity preparations Restorative procedure	4	10
5	Glass ionomer restorations Cavity preparations Restorative procedure	3	7.5
6	Light cure resin composite restorations Cavity preparations Restorative procedure	3	7.5
7	Pulp capping Caries removal Pulp capping procedures	2	5

8	Cast restorations Inlay cavity preparation Direct and indirect fabrication procedure	3	7.5
9	Direct gold restorations Cavity preparation Restorative procedure	2	5
10	Armamentarium and chair side protocols › Finger rests, grasps, chair position › Classification › Hand cutting instruments › Rotary cutting instruments › Matrices and wedges › Filling instruments › Equipments	6	15
11	Over view of root canal therapy Access, clean and shape, and obturation.	2	5

**PRECLINICAL CONSERVATIVE DENTISTRY PRACTICAL SLLABUS**  
**TOTAL HOURS - 200**

S. No	Exercises	Number of Exercise	Number of Hours
1	Discussion and demonstration on the Armamentarium	-	4
2	Discussion and demonstration of the Chair side position, finger rests and grasps	-	4
	Discussion and demonstration of basic principles in cavity preparation in plaster blocks	-	12
3	Class I Silver amalgam in typodont teeth	3	18
4	Class II silver amalgam in typodont teeth	6	36
5	MOD silver amalgam in typodont teeth	1	6
6	Class III Glass ionomer in typodont teeth	4	12
7	Class V Glass ionomer in typodont teeth	4	12
8	Class I Glass ionomer in typodont teeth	1	6
9	Class II Glass ionomer in typodont teeth	1	6
10	Class IV Composite resin in extracted teeth	4	12
11	Class III Composite resin in extracted teeth	3	12

**Preclinical Conservative Dentistry**

12	Class V Composite resin in extracted teeth	1	6
13	Class I Composite resin in extracted teeth	1	6
14	Class II Composite resin in extracted teeth	1	4
15	Class I Direct pulp capping in extracted teeth	1	6
16	Class II Indirect pulp capping in extracted teeth	1	6
17	Pit and fissure sealant in extracted teeth	5	12
18	Preventive resin restoration in extracted teeth	3	10
19	Discussion and demonstration of Class I Indirect restoration	-	4
20	Discussion and demonstration of Root canal treatment	-	6

**EVALUATION** - Preclinical Conservative dentistry Practical examination. - 100 marks total

**Practicals – 60 marks**

1. Traditional - Class II cavity preparation, base, matricing & restoration - 30 marks
2. OSPE - 6 stations of 5 marks each - 30 marks

Internal assessment – 20 marks

Viva – 20 marks

**BLUE PRINT FOR OSCPE PRECLINICAL CONSERVATIVE DENTISTRY**

S.No	Stations	Weightage %	Domains
1	Armamentarium and chair side protocols	12.5	cognitive
2	Dental caries	20	cognitive
3	Principles of cavity preparation	17.5	cognitive
4	Matrices and wedges placement	12.5	psychomotor
5	Pulp protective agents & Manipulation of cements	25	Cognitive & psychomotor
6	Direct composite resin restoration - preventive and restorative	12.5	cognitive

# **III YEAR SYLLABUS**

## GENERAL MEDICINE

Number of hours prescribed by DCI		
Theory hours	Clinical hours	Total
III year BDS 60	III year BDS 90	150
Total : 60	Total : 90	

### GOAL

Special emphasis should be given throughout on the importance of various diseases as applicable to dentistry.

1. Special precautions/ contraindication of anaesthesia and various dental procedures in different systemic diseases.
2. Oral manifestations of systemic diseases.
3. Medical emergencies in dental practice.

A dental student should be taught in such a manner he/she is able to record the arterial pulse, blood pressure and be capable of suspecting by sight and superficial examination of the body - diseases of the heart, lungs, kidneys, blood etc. He should be capable of handling medical emergencies encountered in dental practice.

### OBJECTIVES

#### KNOWLEDGE

The dental graduates during training in the Department of General Surgery should acquire

- Training should provide sufficient knowledge on human disease to enable the student to understand its manifestations as relevant to the practice of dentistry.

#### SKILL

- This Requires clinical teaching on patients and shall be carried out in inpatient and outpatient medical departments and specialist clinics.
- Clinical instructions should enable the student to understand and perhaps diagnose common systemic diseases which have relevance to dental practice, by adopting a systemic approach of history taking and clinical examination.

#### ATTITUDE

- The student should also realise the significance of various general and special investigations in the diagnosis of disease.
- The ability to recognise physical and mental illness, dealing with emergencies, effective communication with patients, interaction with various professional colleagues also become important aspects of this training.

**SYLLABUS III YEAR****Theory – 60 hours**

S. No	Topic	System weightage	Number of hours	Must know (M)/ Desirable to know (D)/ Nice to know (N)
1.	Introduction to Medicine History of Medicine Sterilization and Disinfection Diagnosis and Treatment Planning	5%	3	M
2.	Infectious diseases			
3.	Enteric fever, AIDS, Herpes Simplex, Herpes Zoster, Syphilis Diphtheria	5%	5	M
4.	Infectious mononucleosis, Mumps, Measles, Rubella, Malaria	5%	3	D
5.	Stomatitis, Gingival Hyperplasia, Dysphagia, Acid Peptic Disease, Jaundice, Acute and Chronic Hepatitis, Cirrhosis of Liver, ascites	5%	5	M
6.	Diarrhoea, Dysentery, Amoebiasis, Malabsorption	5%	3	D
7.	CVS Valvular heart diseases, Ischemic heart disease, Systemic hypertension, Infective Endocarditis, Rheumatic fever	10%	6	M
8.	RS Pneumonia, COPD, Pulmonary TB, Bronchial Asthma	7.5%	5	M
9.	Lung Abscess, Pleural Effusion, pneumothorax, Bronchiectasis, Lung Cancers, bronchitis	5%	3	D
10.	Haematology Anemias, Leukemias, Coagulation cascade and its disorders	10%	5	M
11.	Renal System Acute nephritis, Renal failure, nephrotic syndrome	7.5%	3	M

12.	CNS Facial Palsy, Facial Pain, Epilepsy, Headache, Trigeminal Neuralgia	10%	4	M
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**General Medicine**

13.	Meningitis, Examination of Cranial Nerves & Comatose Patient	5%	3	D
14.	Nutrition: Avitaminosis, Balanced Diet, PEM	5%	4	M
15.	Endocrinology Diabetes Mellitus, Acromegaly, Hypothyroidism, Thyrotoxicosis, Calcium Metabolism & Parathyroids, Addison Disease, Cushing Syndrome	10%	5	M D
16.	Critical Care Adverse drug reaction, Drug interaction, anaphylaxis, Allergy, Angioneurotic edema	5%	3	D

**Clinical - 90 hours**

Sl.No.	Clinical	Observe / assist / perform
1	History elicitation – 10 HRS	Perform
2	General examination- 10 HRS	Perform
3	Examination of CVS- 20HRS	Perform
4	Examination of RS-15 HRS	Perform
5	Examination of Abdomen 15 HRS	Perform
6	Examination of CNS 20 HRS	Perform

**List of topics for integrated teaching**

1. Sterilization and Disinfection- Dept. of Microbiology & Medicine
2. AIDS- Dept. of Microbiology & Medicine
3. Anemias – Dept. Pathology & medicine
4. Leukemias- Dept of Pathology & medicine
5. Coagulation cascade- Dept. of Physiology & medicine
6. Endocrinology - Thyroid disorders - Dept. of Gen. Surgery

**Scheme of examination****1. Theory: 70 Marks**

Part I : 20 MCQs (20 X 0.5 = 10 Marks)

Part II:

Section A: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)

Section B: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)



## Section C: 5 VSAQs (5 X 2 = 10 Marks)

Theory Internal assessment: 10 marks

Viva voce: 20 marks

Total = 100 Marks

## 2. Practical examination: 90 Marks

Practical Internal Assessment – 10 Marks

Total – 100 Marks

## Blueprint of the question paper

The questions will be distributed as follows:

70 % from the Must know areas

20 % from Desirable to know area

10 % from Nice to know areas

Multiple choice questions should be from must know area

## Section - A

Long answer question – LAQ	Short answer questions - SAQ
Cardiovascular system	Haematology
Abdomen	Infectious diseases
One Question from either system 1x10=10 marks	Critical care medicine (3x5=15)

## Section - B

Long answer question-LAQ	Short answer questions- SAQ
Central nervous system	Nephrology, Nutrition,
Respiratory system	Endocrinology
1 Question from either system (1x10=10 marks)	(3x5 marks = 15 marks)

## Part I &amp; Section – C

Five Very short answer questions-VSAQ - (5 x 2 = 10 marks)
Cardiovascular system, Abdomen, Infectious diseases, Critical care medicine, Central nervous system, Respiratory system, Nephrology, Nutrition, Endocrinology

<b>Twenty Multiple choice questions (20 X 0.5 = 10 marks)</b>
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Introduction to Medicine, Enteric fever, AIDS, Herpes Simplex, Herpes Zoster, Syphilis, Diphtheria Stomatitis, Gingival Hyperplasia, Dysphagia, Acid Peptic Disease, Jaundice, Acute and Chronic Hepatitis, Cirrhosis of Liver, Ascites, Valvular heart diseases, Ischemic heart disease, Systemic hypertension, Pneumonia, COPD, Pulmonary TB, Bronchial Asthma, Anemias, Leukemias, Coagulation cascade and its disorders, Acute nephritis, Facial Palsy, Facial Pain, Epilepsy, Headache, Avitaminosis, DM, Acromegaly, Hypothyroidism, Thyrotoxicosis, Calcium
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**Blueprint for Clinical Examination:**

Total marks: 90 marks

Conventional Long case: 40 marks

OSCE with 10 stations (10x5 marks = 50 marks)

- Knowledge assessment stations = 3
- Identification stations – 3
- Skill observational stations = 3
- Communication skill assessment (observational) = 1

Pass criteria – Cumulative marks- 50%

**Recommended text books**

- Medicine for dental students – Alagappan
- Hutchisons clinical methods
- Macleod clinical examination

**Reference books**

- Davidsons Principles and Practice of Medicine
- API Text book of Medicine

**UNIVERSITY MODEL QUESTION PAPER**  
**III BDS EXAMINATION**  
**GENERAL MEDICINE**

**Time: 3 hours**

**Max. Marks: 70**

**Instructions: Attempt all the questions**  
**Illustrate your answers with suitable diagrams**

**PART - I**

**MULTIPLE CHOICE QUESTIONS:**

**(20X0.5=10)**

1. Typhoid fever is transmitted by
  - a. Contaminated food and fluid
  - b. Droplet nuclei
  - c. Infected syringes and needles
  - d. Sexual intercourse
2. The confirmatory test to diagnose AIDS is
  - a. ELISA
  - b. Western blot
  - c. PCR
  - d. ESR
3. All of the following statements about herpes zoster are true except:
  - a. The herpes zoster rash is generally confined to one or two dermatomes
  - b. The herpes zoster rash is usually a full body rash
  - c. The herpes zoster rash is often preceded by pain and / or tingling
  - d. The herpes zoster rash is typically unilateral
4. Vesicular lesion is seen in
  - a. Primary syphilis
  - b. Secondary syphilis
  - c. Tertiary syphilis
  - d. Congenital syphilis
5. Of the following drugs which drug can cause gum hyperplasia?
  - a. Amlodipine
  - b. Metformin
  - c. Phenytoin sodium
  - d. Ranitidine
6. Which cranial nerve paralysis can lead to dysphagia
  - a. Olfactory nerve
  - b. Oculomotor nerve
  - c. Trigeminal nerve
  - d. Glossopharyngeal nerve
7. Antacid therapy relieves symptoms
  - a. Rapidly
  - b. By completed neutralisation of gastric acid
  - c. By eradicating helicobacter pylori
  - d. Indefinitely
  - e. By protecting the mucosa from acid

8. Jaundice in viral hepatitis can be classified under
  - a. Congenital hyperbilirubinaemia
  - b. Haemolytic
  - c. Hepatocellular
  - d. Obstructive
9. Ascites is fluid collection in the
  - a. Peritoneal cavity
  - b. Pleural cavity
  - c. Pericardial space
  - d. Ventricles in the brain
10. In a patient with cirrhosis of liver the recommended diet is
  - a. Low protein
  - b. High protein
  - c. Low fat
  - d. High fiber
11. Which of the following is the most common cause for mitral stenosis?
  - a. Rheumatic fever
  - b. Congenital
  - c. Endomyocardial fibrosis
  - d. Carcinoid syndrome
12. Which of the following are risk factors for IHD? (Check all that apply)
  - a. Dyslipidemia
  - b. Family history of CVD
  - c. Family history of DM
  - d. Hypertension
  - e. All of the above
13. Typical causes of secondary hypertension is
  - a. Endocrine related
  - b. Kidney related
  - c. Both
  - d. Neither of the above
14. Which of the following associations correctly pairs clinical scenarios and community acquired pneumonia (CAP) pathogens?
  - a. Aspiration pneumonia: *Streptococcus pyogenes*
  - b. Heavy alcohol use: *Atypical pathogens and Staphylococcus aureus*
  - c. Poor dental hygiene: *Chlamydia pneumoniae, Klebsiella pneumoniae*
  - d. Structural lung disease: *Pseudomonas aeruginosa, S. Aureus*
15. Gold standard for diagnosis of Pulmonary Tuberculosis is
  - a. Chest X-Ray
  - b. Culture of the Sputum
  - c. Sputum for AFB
  - d. Bactec TB 460
16. Which of the following deficiency leads to iron deficiency anemia
  - a. Iodine
  - b. Calcium
  - c. Iron
  - d. Magnesium

17. Which of the following are correct about chronic myeloid leukemia?
  - a. It is common in young adults and children
  - b. It typically takes a biphasic chronic and acute course
  - c. Pseudo - Gaucher cells are present in the bone marrow.
  - d. Immunohisto chemistry for terminal deoxynucleotidyl transferase is a helpful way to confirm the diagnosis
18. Which of the following has got a low molecular weight?
  - a. Heparin
  - b. Dicumoral
  - c. Enaxaparin
  - d. Acitrom
19. Bell's palsy is
  - a. Lower motor neuron type of facial nerve paralysis
  - b. Upper motor neuron type of facial nerve paralysis
  - c. Paralysis of the oculomotor nerve
  - d. Paralysis of the trigeminal nerve
20. Atrial fibrillation is one of the complications in
  - a. Hypothyroidism
  - b. Hyperthyroidism
  - c. Pheochromocytoma
  - d. Cushing's Syndrome

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## PART II

### SECTION – A

#### LONG ANSWER QUESTION

(1x10=10)

1. What is cirrhosis of liver? write the etiology and pathogenesis of liver cirrhosis

Enumerate the complications of cirrhosis of liver. (2+5+3)

#### SHORT ANSWER QUESTIONS:

(3x5 = 15)

2. Draw a labelled coagulation cascade
3. List the opportunistic infections which occur in AIDS
4. Mention the first line anti tuberculous drugs with its side effects

### SECTION – B

#### LONG ANSWER QUESTION

(1x10=10)

5. What are the viruses that cause viral meningitis. Describe the clinical features,

cerebrospinal fluid findings and management of viral meningitis (2+3+2+3)

#### SHORT ANSWER QUESTIONS:

(3x5 = 15)

6. Enumerate the symptoms and sign of hyperthyroidism.
7. Write the pre renal causes of acute renal failure
8. Hypervitaminosis of Vitamin A

### SECTION – C

#### VERY SHORT ANSWER QUESTIONS:

(5x 2 = 10 marks)

9. Mention 4 causative organisms for native valve endocarditis
10. What are the viruses that can cause Cirrhosis of liver?
11. What is the cause for haemophilia?
12. Define Transient ischemic attack
13. Define chronic bronchitis

## GENERAL SURGERY

Number of hours prescribed by DCI		
Theory hours	Clinical hours	Total
III year BDS 60	III year BDS 90	150
Total: 60	Total: 90	

### GOAL

To acquaint the student with various diseases, which may require surgical expertise and to train the student to analyze the history and be able to do a thorough physical examination of the patient. The diseases as related to head and neck region are to be given due importance, at the same time other relevant surgical problems are also to be addressed. At the end of one year of study the student should have a good theoretical knowledge of various ailments and be practically trained to differentiate benign and malignant diseases and be able to decide which patient requires further evaluation.

### OBJECTIVES

#### KNOWLEDGE

The dental graduates during training in the Department of General Surgery should acquire

- Training should provide sufficient knowledge on human disease to enable the student to understand its manifestations as relevant to the practice of dentistry.

#### SKILL

- This Requires clinical teaching on patients and shall be carried out in inpatient and outpatient medical departments and specialist clinics.
- Clinical instructions should enable the student to understand and perhaps diagnose common systemic diseases which have relevance to dental practice, by adopting a systemic approach of history taking and clinical examination.

#### ATTITUDE

- The student should also realise the significance of various general and special investigations in the diagnosis of disease.
- The ability to recognise physical and mental illness, dealing with emergencies, effective communication with patients, interaction with various professional colleagues also become important aspects of this training.

**III BDS SYLLABUS**  
**THEORY - 60 HOURS**

Sl. No	TOPIC	System weightage	Number of hours	Must know (M)/ Desirable to know (D)/ Nice to know (N)
1	History of Surgery	1.6%	1	N
2	Metabolic Response to injury	1.6%	1	M
3	General Principles of Surgery A. Various energy sources of instruments B. Anesthesia C. Pain Management D. Sepsis and asepsis E. Principles of preoperative Care F. Post operative Care	6.6%	4	M
4	Wounds a. Types, scars and contractures b. Management c. Chronic wounds	3.3%	2	M
5	Inflammation and Repair of tissues	5%	3	M
6	Infections – Bacterial infections	6.6%	4	M
7	Viral Infections	3.3%	2	M
8	Shock a. Types b. Systemic Manifestations c. Management d. Fluid and electrolyte balance Hemorrhage and blood transfusion	5%	3	M
9	Tumors / Ulcers / Cysts / Sinus / Fistula / skin swellings a. Dermoid Cyst b. Lipoma c. diabetic ulcer d. Trophic ulcer e. Venous ulcer f. Cervical lymphadenitis	6.6%	4	M
10	Diseases of Lymphatic System a. Hodgkins b. NHL c. Lymphangitis	3.3%	2	M



11	Diseases of the oral cavity a. ranula b. sublingual dermoid c. premalignant lesions d. malignant lesions of oral cavity	6.6%	4	M
12	Diseases of the Larynx / Nasopharynx / Neck a. Abscess b. Tracheostomy c. Pharyngeal pouch d. Elective laryngotomy	3.3%	2	N
13	Nervous System a. Types of peripheral nerve injuries b. Repair	3.3%	2	N
14	Fractures a. General principles of fracture management b. Head injury c. Management of seriously injured patient d. Fractures of maxilla and mandible	6.6%	4	D
15	Principles of operative surgery a. Flaps / Grafts and sutures b. Suturing techniques c. Instruments	5%	3	M
16	Anomalies of development of face a. Cleft lip b. Cleft palate	3.3%	2	D
17	Diseases of Thyroid a. Hypo and hyperthyroidism b. Solitary nodule c. MNG d. neoplasms e. Parathyroid – calcium / tetany	6.6%	4	M
18	Swelling of the jaw a. Non odontogenic tumors of jaw	3.3%	2	M
19	Biopsy / FNAC	3.3%	2	M
20	Salivary Glands	5%	3	M
21	Principles of oncology	1.6%	1	D
22	Surgical Audit / Ethics / Day Care Surgery	1.6%	1	D
23	Patient Safety	1.6%	1	D

24	Diagnostic Imaging and Tissue Imaging	1.6%	1	D
25	Burns and scald	1.6%	1	N
26	Venous thrombosis and ulcers of the leg	1.6%	1	D

**CLINICAL CLASS – 90 HOURS**

Sl No.	CLINICAL	OBSERVE / ASSIST / PERFORM
1	History Taking and Examination of Ulcer	Observation / Examination
2	History Taking and Examination of Swelling	Observation / Examination
3	History Taking and Examination of Thyroid	Observation / Examination
4	History Taking and Examination of Head and Neck Malignancies	Observation / Examination
5	Observation and assisting common Surgical procedures in OPD	Observation /Assisting
6	Observation of procedures in OT	Observation
7	Exposure to Venepuncture / IV cannulation / IM injections	Observation /Assisting

**Integrated topics**

S.No	TOPIC	DEPARTMENTS
1	Infections. Diseases of the Oral cavity. Anomalies of development of face - Developmental disturbances.	Oral Pathology
2	Nervous system – Facial nerve palsy, Trigeminal neuralgia, Thyroid and parathyroid glands.	General Medicine
3	Principles of Operative Surgery - Various energy sources of instruments, Anaesthesia, pain management.	Oral Surgery

**Scheme of Examination:****1. Theory: 70 Marks**

Part I : 20 MCQs (20 X 0.5 = 10 Marks)

Part II:

Section A: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)

Section B: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)

Section C: 5 VSAQs (5 X 2 = 10 Marks)

**Theory Internal assessment:** 10 marks

**Viva voce:** 20 marks

**Total = 100 Marks**

2. Practical examination: 90 Marks

Practical Internal Assessment - 10 Marks

**Total - 100 Marks**

### BLUE PRINT OF THE QUESTION PAPER:

The questions will be distributed as follows:

70% from Must know areas

20% from Desirable to know areas

10% from Nice to know areas

MCQs should be from must know areas

SECTION A - (PATTERN - I) If LAQ from Hemorrhage, Shock, Blood Transfusion					
SL NO	TOPICS	LAQ (1x10)	SAQ (3x5)	VSAQ	MCQ (10X0.5)
1	Wounds, Skin Grafting and flaps		1	2 VSAQs	2
2	Inflammation, Infection		1		1
3	Hemorrhage, Shock, Blood Transfusion	1			1
4	Cyst, Ulcer, Sinus, Fistula, Skin, Swellings				2
5	Ulcer – Diabetic / Venous / Malignant and Gangrene				1
6	Salivary Gland		1		2
7	Energy Sources / Anesthesia / Pain relief / FNAC / Biopsy				1

SECTION A - (PATTERN - II) If LAQ from Salivary Gland					
SL NO	TOPICS	LAQ (1x10)	SAQ (3x5)	VSAQ	MCQ (10X0.5)
1	Wounds, Skin Grafting and flaps		1		1
2	Inflammation, Infection		1		1

**General Surgery**

3	Hemorrhage, Shock, Blood Transfusion		1	2 VSAQs	1
4	Cyst, Ulcer, Sinus, Fistula, Skin Swellings				2
5	Ulcer – Diabetic / Venous / Malignant and Gangrene				1
6	Salivary Gland	1			2
7	Energy Sources / Anesthesia / Pain relief / FNAC / Biopsy				2

SECTION B - (PATTERN - I) If LAQ from Oral cavity					
SL NO	TOPICS	LAQ (1x10)	SAQ (3x5)	VSAQ	MCQ (10X0.5)
1	Thyroid		1	3 VSAQs	2
2	Oral cavity	1			2
3	Neck swelling –benign and malignant tumors of the neck		1		2
4	Jaw swelling / maxillary and mandibular fractures		1		2
5	Tracheostomy / Burns and Scalds / Cleft lip and palate				1
6	Oncology Principles/ Surgical Audit/ Day care Surgery / Diagnostic Imaging	1			1

SECTION B - (PATTERN - II) If LAQ from Thyroid					
SL NO	TOPICS	LAQ (1x10)	SAQ (3x5)	VSAQ	MCQ (10X0.5)
1	Thyroid	1		3 VSAQs	2
2	Oral cavity		1		2
3	Neck swelling –benign and malignant tumors of the neck		1		1
4	Jaw swelling / maxillary and mandibular fractures		1		2
5	Tracheostomy / Burns and Scalds / Cleft lip and palate				2

6	Oncology Principles/ Surgical Audit/ Day care Surgery / Diagnostic Imaging				1
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**Blueprint of Practical examination:**

1. **Clinical Examination : 90 marks**  
**Case Examination : 45 marks**  
**OSCE (15 stations X 3marks): 45 marks**

STATION 1 (HISTORY) STANDARISED PATIENT	STATION 2 (INSTRUMENT) OBSERVER STATION	STATION 3 (DIABETIC ULCER) PERFORMANCE STATION	STATION 4 (LIPOMA) PERFORMANCE STATION
STATION 5 (MALIGNANT ULCER) PERFORMANCE STATION	STATION 6 (THYROID) PERFORMANCE STATION	STATION 7 (PAROTID)	STATION 8 (SWELLING)
STATION 9 (OPERATIVE SURGERY) OBSERVER STATION	REST	STATION 10 (PREVENTIVE ASPECTS) OBSERVER STATION	STATION 11 (HISTORY) STANDARISED PATIENT
STATION 12 EXAMINATION OF SWELLING	STATION 13 (THYROID)	STATION 14 (COMMUNI CATION SKILLS) OBSERVER STATION	STATION 15 ULCER

**Recommended text books**

1. Short practice of surgery – Baily & Love
2. A Manual on Clinical Surgery - S. Das

UNIVERSITY MODEL QUESTION PAPER

III BDS EXAMINATION

GENERAL SURGERY

TOTAL MARK – 70 MARKS

TIME: 3 HOURS

Answer all the questions.

Illustrate your answers with suitable diagrams

PART - I

MODEL MULTIPLE CHOICE QUESTIONS:

20X0.5=10

1. A patient with grossly contaminated wound presents 12hours after an accident, his wound should be managed by:
  - a. Thorough cleaning and primary repair
  - b. Thorough cleaning with debridement of all dead and devitalized tissue without primary closure.
  - c. Primary closure over a drain
  - d. Covering the defect with split skin graft after cleaning
2. The organism causing destruction of skin grafts is
  - a. Streptococcus
  - b. Staphylococcus
  - c. Pseudomonas
  - d. Clostridium
3. Suppurative or purulent inflammation is characterised by?
  - a. Edema
  - b. Extravascular Fluid
  - c. Inflammation of lining of body cavities
  - d. Large amount of pus
4. A man is rushed to casualty, nearly dying after a massive blood loss in an accident. There is not much time to match blood groups, so the physician decides to order for one of the following blood groups. Which one of the following blood groups should the physician decide:
  - a. O negative
  - b. O positive
  - c. AB positive
  - d. AB negative
5. What are the signs and symptoms of early sepsis?
  - a. Respiratory acidosis
  - b. Decreased cardiac output
  - c. Hypoglycemia
  - d. Increased arteriovenous oxygen difference
  - e. Cutaneous vasodilation
6. A 30-year-old patient comes to the physician to explore the possibility of an endocrine disorder. Physical examination reveals a solitary thyroid nodule Laboratory studies show an increased serum calcitonin level and a pentagastrin induced rise in the secretion of calcitonin. A biopsy confirms the presence of a carcinoma. The patient is scheduled

- for a total thyroidectomy. Which of the following is a potential complication of this treatment?
- Acromegaly
  - Cretinism
  - Hypertension
  - Hypoparathyroidism
  - Renal osteodystrophy
7. Trendelenburg position useful in which type of shock?
- hypovolumic shock
  - cardiogenic shock
  - Septic shock
  - neurogenic shock
8. The major cause following of death following road traffic accident is:
- Brain damage
  - Abdominal injury
  - Facial injury
  - Chest trauma
  - Fracture with fat embolism
9. Cleft lip ideally repaired at:
- Soon after birth.
  - 6 weeks-12 weeks.
  - 10 weeks -24 weeks
  - 24 weeks-36 weeks
  - 1 year
10. Moh's Surgery is generally not done for
- Melanoma
  - Basal cell carcinoma
  - Squamous cell carcinoma
  - Merkel cell carcinoma
11. After a swelling has been clinically defined, the most advised investigation is:
- X-ray.
  - Ultrasound
  - CT
  - MRI
  - FNAC
12. Healing by first intention means:
- Using catgut.
  - Obtaining union between 2 edges of an incision without subsequent breakdown
  - Immediate use of protective dressing.
  - Using staples
  - A method whereby an ulcer heals
13. Nasopharyngeal carcinoma mostly arises from:
- |                  |                        |
|------------------|------------------------|
| a. Roof          | b. Posterior wall      |
| c. Anterior wall | d. Fossa of rosemuller |
| e. Lateral wall  |                        |

### General Surgery

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14. Branchial Cyst is best differentiated from cold abscess by:
  - a. Fluctuant
  - b. Trans illumination
  - c. Contains cholesterol crystal
  - d. Contains sulphur granules
  - e. Contains blood
15. Highest incidence of nasopharyngeal cancer is in:
  - a. Indian
  - b. Pakistani
  - c. American
  - d. Chinese
  - e. European
16. In surgical profession, a patient has been infected by HIV positive doctor during which procedure:
  - a. Endoscopy
  - b. Dental extraction
  - c. Abdominal surgery
  - d. Cardiac transplant
  - e. Renal transplant
17. Mask use in operation theatre:
  - a. Protects patient from getting infection
  - b. Protects the doctor
  - c. Protects both doctor and patient.
  - d. None is protected
  - e. Should not be used
18. A punched out edge is a characteristic of which type of ulcer:
  - a. tuberculosis is a characteristic of which type of ulcer;
  - b. Rodent ulcer.
  - c. Syphilitic.
  - d. Non-specific ulcer
  - e. Malignant ulcer
19. CYSTIC HYGROMA is:
  - a. Lymphangiectaria
  - b. Cavernous haemangioma
  - c. Sebaceous cyst
  - d. Dermoid cyst
  - e. Haemangioma
20. The most common indication for removal of sub-lingual salivary gland is:
  - a. Sialoadenosis.
  - b. Neoplasm
  - c. Ranula
  - d. Lymphoma
  - e. Stone.



## **PART II**

### **SECTION – A (35 marks)**

#### **LONG ANSWER QUESTION:**

**1X 10 = 10**

1. List the indications of blood transfusion. Describe the blood fractions used.  
Enumerate the complications of blood transfusion

**(3+4+3)**

#### **SHORT ANSWER QUESTIONS**

**3 X 5 =15**

2. Describe the difference between keloid and hypertrophic scar
3. Describe the five stages of tuberculous lymphadenitis
4. Describe the management (lab diagnosis and treatment) of pleomorphic adenoma

### **SECTION – B**

#### **LONG ANSWER QUESTION**

**1X10 = 10**

5. Classify thyroid malignancy. Describe the clinical features and management of  
Papillary carcinoma of thyroid

**1X10 = 10 marks**

#### **SHORT ANSWER QUESTIONS**

**3X 5 = 15**

6. Describe the management of carcinoma of lip
7. What are the clinical features and management of branchial cyst
8. Describe the pathology and management of adamantinoma

#### **VERY SHORT ANSWER QUESTIONS:**

**5X2=10**

9. List the four premalignant conditions of oral cancer
10. Describe the Lefort fracture III
11. What is the Parklands formula used for burns
12. What are the advantages of day care surgery
13. List four complications of parotid surgery

## **ORAL AND MAXILLOFACIAL PATHOLOGY & ORAL MICROBIOLOGY**

Number of hours prescribed by DCI		
Theory hours	Practical hours	Total hours
145 hrs	130 hrs	275 hrs

### **GOAL**

To acquaint the student with various diseases, which may require surgical expertise and to train the student to analyze the history and be able to do a thorough physical examination of the patient. The diseases as related to head and neck region are to be given due importance, at the same time other relevant surgical problems are also to be addressed. At the end of one year of study the student should have a good theoretical knowledge of various ailments, and be practically trained to differentiate benign and malignant diseases and be able to decide which patient requires further evaluation.

### **OBJECTIVES**

#### **KNOWLEDGE**

At the end of Oral Pathology & Microbiology course, the student should be able to comprehend -

1. The different types of pathological processes, that involve the oral cavity.
2. The manifestations of common diseases, their diagnosis & correlation with clinical pathological processes.
3. An understanding of the oral manifestations of systemic diseases should help in correlating with the systemic physical signs & laboratory findings.
4. The student should understand the underlying biological principles governing treatment of oral diseases.
5. The principles of certain basic aspects of Forensic Odontology.

#### **SKILL**

1. Microscopic study of common lesions affecting oral tissues through microscopic slides & projection slides.
2. Study of the disease process by surgical specimens.
3. Study of teeth anomalies/polymorphisms through tooth specimens & plaster casts.
4. Microscopic study of plaque pathogens.
5. Study of haematological preparations (blood films) of Anaemias & leukemias.
6. Basic exercises in Forensic Odontology such as histological methods of age estimation and appearance of teeth in injuries.

**Syllabus:****Theory – 145 hours**

Sl. No	TOPIC	System weightage	Number of hours	Must know (M)/ Desirable to know (D)/ Nice to know (N)
1	Developmental Disturbances	8.3 %	12	M
2	Dental caries	5.2%	5	M
3	Diseases of the pulp and Periapical tissues	3.5%	4	M
4	Benign & Malignant tumors of oral cavity	16%	30	M
5	Salivary Glands pathology	5.1%	7	M
6	Regressive alterations of teeth	2%	3	M
7	Infections of the Oral cavity	7.6%	12	M
8	Tumours of odontogenic origin	6.4%	10	M
9	Odontogenic cysts	6.4%	6	M
10	Allergic and Immunological Diseases of the Oral cavity	2.5%	4	M
11	Spread of Oral Infection	1.3%	2	M
12	Physical and Chemical Injuries of the Oral Cavity	3.2%	5	M
13	Biopsy, Cytology and Healing of Oral Wounds	2%	3	M
14	Disease of Bone	6.4%	8	M
15	Disorders of the Temporomandibular Joint	2%	3	M
16	Blood Dyscrasias	4.8 %	6	M
17	Diseases of Periodontology	3.2%	5	M
18	Diseases of Skin	6.4%	8	M
19	Oral Aspects of Metabolic Disease	3.2%	5	M
20	Diseases of Nerves & Muscle	2%	3	M
21	Introduction to Forensic Odontology	2.5%	4	M

**Practicals: 130hrs**

SLNo	CONTENT	DURATION
1	Developmental Disturbances	20
2	Dental caries	5
3	Diseases of the pulp and Periapical tissues	10
4	Benign & Malignant tumors of oral cavity	30
5	Salivary Glands pathology	15
6	Infections of the Oral cavity	5
7	Tumours of odontogenic origin	10
8	Odontogenic cysts	15
9	Disease of Bone	10
10	Diseases of Skin	10

**INTEGRATED TEACHING TOPICS**

SLNo	TOPICS	DEPARTMENT INTEGRATED
1.	Developmental Disturbances	Paedodontia
2.	Benign & Malignant tumors of oral cavity	Oral Medicine & Radiology Oral Surgery
3.	Odontogenic cysts and Odontogenic tumors	Oral Surgery Oral Medicine & Radiology
4.	Spread of Oral Infection	Oral Medicine & Radiology Oral surgery
5.	Diseases of bone	Oral Medicine & Radiology Oral Surgery
6.	Disorders of the Temporomandibular Joint	Oral Medicine & Radiology Oral Surgery
7.	Diseases of Periodontology	Periodontia
8.	Diseases of Skin	Oral Medicine & Radiology
9.	Introduction to Forensic Odontology	Oral Medicine & Radiology
10.	<ul style="list-style-type: none"> <li>➤ Hematology</li> <li>➤ Infections</li> <li>➤ Metabolic disorders (endocrine disorders)</li> </ul>	General Medicine
11.	<ul style="list-style-type: none"> <li>➤ Salivary gland pathology</li> <li>➤ Soft tissue pathology</li> <li>➤ Diseases of endocrine disorder (Thyroid and Parathyroid)</li> </ul>	General surgery

	<ul style="list-style-type: none"> <li>➤ Swellings of the jaws</li> <li>➤ Diseases of the oral cavity</li> <li>➤ Infections</li> </ul>	
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### Scheme of Examination

#### 1. Theory: 70 Marks

Part I : 20 MCQs (20 X 0.5 = 10 Marks)

Part II:

Section A: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)

Section B: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)

Section C: 5 VSAQs (5 X 2 = 10 Marks)

**Theory Internal assessment:** 10 marks

**Viva voce:** 20 marks

**Total = 100 Marks**

#### 2. Practical examination: 90 Marks

**Practical Internal Assessment – 10 Marks**

**Total – 100 Marks**

#### Blue print of the question paper

**Section A:** Oral Pathology for 25 marks

**Section B:** Developmental disturbances, Microbiology & Forensic Odontology for 25 marks

#### Distribution of Topics and type of Questions in theory paper

Type of question and Marks	Content
PART I – MCQs MCQ's – (20X0.5 = 10marks)	10 MCQ'S from SECTION A topics 10 MCQ'S from SECTION B topics
<b>Section A (25 marks)</b> <ul style="list-style-type: none"> <li>➤ Essay- (1X10 marks)</li> <li>➤ Short Notes (3X5 marks)</li> </ul>	Oral Pathology (Benign And Malignant Tumors of Oral Cavity, Salivary Glands, Odontogenic Cyst & Odontogenic Tumors / Diseases of Skin) etc.
<b>Section B (25 marks)</b> <ul style="list-style-type: none"> <li>❑ Essay – (1X10 marks)</li> <li>❑ Short Notes (3X5 marks)</li> </ul>	<ul style="list-style-type: none"> <li>❑ Developmental Disturbances Of Oral &amp; Para Oral Structures / Dental caries / pulpal and peri-apical infections</li> <li>❑ Microbiology (infection – bacterial, viral and fungal)</li> <li>❑ Forensic Odontology</li> </ul>

<b>Section C- VSAQs</b> VSAQ – (5X 2 = 10 marks)	3 VSAQs from SECTION A topics 2 VSAQs from SECTION B topics
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The questions will be distributed as follows:

- 70 % from the Must know areas
- 20 % from Desirable to know areas
- 10 % from Nice to know areas

<b>Section A</b>				
<b>Model 1: If LAQ is from the Benign And Malignant Tumors Of Oral Cavity, Salivary Glands, Cyst And Odontogenic Tumors The Matrix is as follows:</b>				
S.No	TOPIC	LAQ (1x10)	SAQ (3x5)	25 MARKS
1.	Benign and Malignant Tumors of Oral Cavity, Salivary Glands, Cyst and Odontogenic Tumors	1	1	15
2.	Physical & Chemical Injuries Regressive Alterations Healing Metabolic Disease, Allergic and Immunologic disease of Oral Cavity		1	5
3.	Disease of Bone and Joint Disease of Nerves and Muscles			
4.	Disease of Blood and Blood Forming Organs			
5.	Disease Of Skin		1	5

**Model 2 : If LAQ is from the Disease Of Skin, the Matrix is as follows:**

S.No	TOPIC	LAQ (1x10)	SAQ (3x5)	25 MARKS
1.	Benign and Malignant Tumors of Oral Cavity, Salivary Glands, Cyst And Odontogenic Tumors		2	10
2.	Physical & Chemical Injuries Regressive Alterations Healing Metabolic Disease, Allergic and Immunologic Disease of Oral Cavity			
3.	Disease of Bone and Joint Disease of Nerves and Muscles			
4.	Disease of Blood and Blood Forming Organs		1	5

5.	Disease Of Skin	1		10
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SECTION B:				
<b>Model 1 :</b> If LAQ Is From The Developmental Disturbances Of Oral And Para Oral Structures, the Matrix Is As Follows :				
S.No	TOPIC	LAQ (1x10)	SAQ (3x5)	25 MARKS
1.	Developmental Disturbances of Oral and Para Oral Structures	1		10
2.	Dental Caries		1	5
3.	Infections (Viral, Bacterial, Fungal)		1	5
4.	Disease of Pulp, Periapical, Periodontium and Spread of Oral Infection		1	5
5.	Forensic Odontology			

**Model 2 :** If LAQs from the Dental Caries, the matrix is as follows

S.No	TOPIC	LAQ (1x10)	SAQ (3x5)	25 MARKS
1.	Developmental Disturbances of Oral and Para Oral Structures		1	5
2.	Dental Caries	1		10
3.	Infections (Viral, Bacterial, Fungal)			
4.	Disease of Pulp, Periapical, Periodontium and Spread of Oral Infection		1	5
5.	Forensic Odontology		1	5

#### Blueprint of Practical Examination: 90 Marks

##### OSPE

- ✓ Total no. of stations - 15
- ✓ Non-observer stations - 13.
- ✓ Observer stations – 2
- ✓ Time duration of single station – 5 minutes

##### RECOMMENDED BOOKS

- |  |                                     |
|--|-------------------------------------|
| 1. A Text Book of Oral Pathology                     | - Shafer, Hine & Levy.              |
| 2. Oral Pathology - Clinical Pathologic correlations | - Regezi & Sciubba.                 |
| 3. Oral Pathology                                    | - Soames & Southam.                 |
| 4. Oral Pathology in the Tropics                     | - Prabhu, Wilson, Johnson & Daftary |
| 5. Oral and Maxillofacial Pathology                  | - Neville, Damm, Allen, Bonquet     |



**UNIVERSITY MODEL QUESTION  
PAPER III BDS EXAMINATION  
ORAL PATHOLOGY AND MICROBIOLOGY**

**Time: 3 hours**

**Max. Marks: 70**

**Answer all the questions.**

**Illustrate your answers with suitable diagram**

**PART - I**

**MODEL MULTIPLE CHOICE QUESTIONS:**

**(20 x 0.5=10)**

1. Micrognathia is a feature of
  - a. Paget's disease
  - b. cherubism
  - c. Fibrous dysplasia
  - d. Pierre Robin syndrome
2. Xerostomia is a
  - a. Decreased salivation
  - b. Increased salivation
  - c. increased salivary pH
  - d. decreased salivary pH
3. Stillman's cleft is
  - a. MucoGingival cleft
  - b. lip cleft
  - c. palatal cleft
  - d. cleft of tongue
4. Anaphylaxis is mediated by
  - a. IgA
  - b. IgM
  - c. IgD
  - d. IgE
5. The receptor for HIV virus is
  - a. CD4 cell
  - b. CD8 cell
  - c. CD12 cell
  - d. CD 16 cell
6. Stria of Wickham is a diagnostic of
  - a. Pemphigus
  - b. Lichen Planus
  - c. Herpes simplex
  - d. Psoriasis
7. Ghost teeth is a radiographic feature of
  - a. Odonto dysplasia
  - b. Dentin Dysplasia
  - c. Ectodermal dysplasia
  - d. Enamel dysplasia

8. Screw driver shape is the feature of
  - a. Syphilis
  - b. Herpes simplex
  - c. Tetanus
  - d. congenital syphilis
9. Perineural invasion is a characteristic feature of
  - a. adenoid cystic carcinoma
  - b. Polymorphous adeno carcinoma
  - c. Mucoepidermoid carcinoma
  - d. Both A& B
10. Monros abcess is a feature of
  - a. psoriasis
  - b. Lichen Planus
  - c. Tuberculosis
  - d. Syphilis
11. Systemic Lupus Erythematos is
  - a. an infective disease
  - b. neoplasm
  - c. Autoimmune disorder
  - d. Traumatic ulcer
12. Anishow cell is a feature seen in f
  - a. Apthous ulcer
  - b. Lupus eruthematos
  - c. Darriers disease
  - d. None of the above
13. which is not Immunodefeciency disorders
  - a. AIDS
  - b. viral hepatitis
  - c. Herpangina
  - d. tuberculosis
14. Liesegang's calcifications are features seen in
  - a. Calcifying epithelial odontogenic tumor
  - b. Adenomatoid odontogenic tumor
  - c. Calcifying epithelial odontogenic cyst
  - d. Squamous cell carcinoma
15. Gingival cyst of new born is most commonly seen on
  - a. Hard palate
  - b. Alveolar ridge
  - c. Tongue
  - d. Soft palate
16. The Dentigerous cyst is
  - a. Developmental
  - b. Non inflammatory
  - c. Inflammatory
  - d. A&B

17. Dentigerous cyst will transform into
  - a. Ameloblastoma
  - b. odontoma
  - c. Keratocystic odontogenic tumor
  - d. squamous cell carcinoma
18. Which is the most common tooth associated with cementoblastoma
  - a. Mandibular molar tooth
  - b. Maxillary molar tooth
  - c. Maxillary anterior tooth
  - d. None of the above
19. Neoplastic cells in Pindborg tumor are thought to originate from
  - a. Stratum Intermedium
  - b. Stratum reticulum
  - c. Inner enamel epithelium
  - d. Outer enamel epithelium
20. Which is the most common histological variant seen in ameloblastoma
  - a. Acanthomatous variant
  - b. follicular variant
  - c. Unicystic variant
  - d. Desmoplastic variant

**PART II**  
**SECTION - A**

**LONG ANSWER QUESTION:** (1 X 10 = 10)

1. Discuss in detail on the types, clinical features, histopathology and laboratory investigations of pemphigus.

**SHORT ANSWER QUESTIONS:** (3 X 5 = 15)

2. Write a note on the histopathologic features of Adenoid cystic carcinoma.
3. Discuss on the etiopathogenesis of oral submucous fibrosis.
4. What is Pernicious anemia? Write a note on lab investigations & diagnosis of pernicious anemia.

**SECTION - B**

**LONG ANSWER QUESTION:** (1X10=10)

5. Define dental caries, discuss on the classification, clinical features and histopathology of dentinal caries.

**SHORT ANSWER QUESTIONS:** (3 X 5=15)

6. Discuss on the pathogenesis and oral manifestations of herpes simplex.
7. What is the role of bite marks in forensic odontology?
8. What are the oral manifestations of syphilis?

**Section C**

**VERY SHORT ANSWER QUESTIONS:** (5 X 2 = 10)

9. What is van der Woude syndrome
10. What is Cafe-au-lait spot?
11. Define cyst.
12. What are the micro-organism that cause ANUG
13. What is foci of infection?

# **IV YEAR SYLLABUS**

**ORAL MEDICINE AND RADIOLOGY**

Number of hours prescribed by DCI				
Theory hours		Practicals hours		Total
III year BDS 20	IV year BDS 45	III year BDS 70	IV year BDS 100	235
Total: 65		Total: 170		

**GOAL**

To prevent, control and Treat oral diseases and promote oral health through organized community efforts Learn to Manage Oral Manifestations in a Medically Compromised Patient.

**OBJECTIVES****KNOWLEDGE**

The dental graduates during training in the Department of Oral Medicine & Radiology should acquire

- Adequate knowledge which are required for carrying out all the activities involving the prevention, diagnosis and treatment of anomalies and diseases of the teeth, mouth, jaws and associated tissues.
- Proficiency in Identifying Oral manifestations of systemic disorders and Management of Medically compromised patients.
- The graduate should also understand the concept of Radiology and Maxillofacial Imaging.

**SKILL**

- To obtain proper clinical history, examination of the patient, perform diagnostic procedures and order essential radiographic and laboratory tests and interpret them and to arrive at a diagnosis about the Orofacial Diseases and to render non- surgical treatment.
- To perform with competence various Intraoral Radiographic procedures.

**ATTITUDE**

- Develop adequate communication skills particularly with the patients giving them the various options available to manage a particular Orofacial problem and obtain a true informed consent from them for the most appropriate treatment available at that point of time
- Develop the ability to communicate with professional colleagues.
- Develop ability to teach undergraduates, present seminars and develop leadership skills

## COMPETENCIES

At the completion of the undergraduate training programme the graduates shall be competent in the following:

1. Able to identify precancerous and cancerous lesions of the oral cavity and refer to the concerned specialty for their management
2. Should have an adequate knowledge about medical complications that can arise while treating systemically compromised patients and take prior precautions/ consent from the concerned medical specialist
3. Should have an adequate knowledge about common laboratory investigations and interpretation of their results
4. Have adequate knowledge about radiation health hazards, radiations safety and protection
5. Competent to take intra oral radiographs and interpret the radiographs findings
6. Gain adequate knowledge of various extra oral radiographic procedures, TMJ radiography and sialography
7. Be aware of the importance of intra and extra-oral radiographs in forensic identification and Age estimation
8. Should be familiar with jurisprudence, ethics and understand the significance of dental records with respect to law.

## SYLLABUS III YEAR

Theory – 20 hours

Sl no	TOPIC	System weightage	Number of hours	Must know (M)/ Desirable to know (D)/ Nice to know (N)
1.	Introduction to Oral Medicine and Radiology and Principles of oral diagnosis	10%	1	M
2.	Oral sepsis and its effect on general system	5%	1	M
3.	Basic physics in radiology, Properties of X-Rays, Radiographic equipment, Interactions of X-Rays with Matter, Dosimetry	10%	2	M
4.	Radiation Biology	10%	2	M
5.	Asepsis in Radiology Clinic	7.5%	1	M
6.	Radiation Protection	7.5%	1	M

7.	Films, Intensifying screens, Film Holders & Grids	10%	1	M
8.	Principles of Intra oral Radiography, techniques, Localization of objects	10%	2	M
9.	Radiographic Film Processing	10%	1	M
10.	Radiographic interpretation	10%	1	M
11.	Radiographic artefacts and faulty radiographs	10%	1	M
12.	Comprehensive Case History & Examination	20%	2	M
13.	Clinical Pharmacology	20%	1	M
14.	Principles, procedures, and protocol for asepsis, sterilization, infection control	20%	1	M
15.	Dental Caries, Regressive alterations of teeth, Pulp & Periapical Pathologies	20%	1	M
16.	Periodontal Diseases	20%	1	M

**SYLLABUS IV YEAR****Theory – 45 hours**

Sl no	TOPIC	System weightage	Number of hours	Must know (M)/ Desirable to know (D)/ Nice to know (N)
1	Immunologic disorders affecting oral cavity including Autoimmune diseases and Allergic Reactions	6%	2	M
2	Differential diagnosis of Pain, Psychosomatic diseases, burning mouth syndrome, glossopyrosis, glossodynia, Orofacial dysesthesia, cancer phobia, taste and smell abnormalities	6%	2	M
3	Oral manifestations of metabolic disorders	3%	1	D
4	Radiographic manifestations of systemic diseases in jaw bones	6%	1	D
5	Panoramic Radiography and Conventional Tomography	3%	1	M
6	Principles and techniques of extra oral radiography	3%	2	D



7	Advance radiographic techniques including digital imaging, Ultrasound, CT, MRI, Nuclear Imaging and Contrast radiography	5%	3	D
8	Acute and Chronic infections including Space infections, Osteomyelitis, Osteoradionecrosis and STDs	6%	3	M
9	Red & White Lesions including Potentially Malignant Disorders	6%	3	M
10	Oral Cancer, Epidemiology, aetiology and Classification, Screening, diagnosis and management including Principles of radiotherapy	8%	3	M
11	Ulcerative and Vesiculo-bullous lesions: Acute, chronic recurrent, Multiple and single ulcers	6%	3	M
12	Dermatological diseases - importance in dentistry	4%	1	D
13	Orofacial Pigmentation	4%	2	D
14	Cysts and Tumours Diagnostic protocol for clinical and radiographic differential diagnosis of Cysts, Odontogenic, non-odontogenic and developmental cysts, Cysts of soft tissues	8%	3	M
15	Diseases of Tongue	6%	1	D
16	Maxillary Sinus	4%	1	D
17	Salivary gland disorders	8%	2	M
18	Chronic Orofacial Pain & Management	8%	2	M
19	Temporomandibular disorders and Imaging	8%	2	M
20	Maxillofacial trauma - clinical diagnostic protocol and Imaging	6%	1	M
21	Oral manifestations of systemic diseases and management of medical emergencies and medically compromised patients	6%	4	M
22	Dental Implants including Imaging	6%	1	M
23	Forensic Odontology	6%	1	D

**Clinical - 100 hours**

Sl no	Clinical	Observe / assist / perform
1	Case History Recording 02 Cases	Observe Faculty/ Postgraduates
2	Case History Recording 03 Cases	Assist Faculty/ Postgraduates
3	Case History Recording 10 Cases with Indicated Radiographs (Including 2 cases of Oral Mucosal Lesions and 1 case of TMD)	Perform
4	Intraoral Radiography 10 (Including IOPA with Bisecting Angle, Paralleling, Bitewing & Occlusal Radiographs)	Observe Faculty/ Postgraduates
5	Intraoral Periapical Radiography (Including IOPA with Bisecting Angle Paralleling, Bitewing & Occlusal Radiographs)	Assist Faculty/ Postgraduates
6	Intraoral Periapical Radiography of normal anatomy 10 (Including IOPA with Bisecting Angle / Paralleling 08), Bitewing 02) & Occlusal Radiographs 02) with Tracings of Normal Anatomy Intraoral Periapical Radiography of Periapical Pathologies 10	Perform
7	Extra Oral Radiography 05	Observe Faculty/ Postgraduates
8	Panoramic Radiography	Observe Faculty/ Postgraduates
9	Biopsy	Observe/Assist Faculty/ Postgraduates
10	Vital Tissue Staining	Observe/Assist Faculty/ Postgraduates

**Chair-side teaching syllabus**

Sl.No	Topics	
1	Demonstration of Case History Taking, General Physical Examination, Extra Oral, Examination of TMJ, Lymph nodes. & Intra Oral Hard & Soft Tissue Examination.	2 Hrs
2	Demonstration of Use of Radiographic Equipment's and Accessories, Dark Room Procedures	1 Hr
3	Demonstration of Intraoral Radiographic techniques	1 Hr

4	Prescription writing, Referral forms, Opinion Seeking Forms and Investigation Requisition forms	1Hr
5	Caries Risk Assessment, Diagnosis and Management of Pulpal & Periapical Pathologies	2 Hrs
6	Diagnosis and Management of Periodontal Pathologies	1 Hr
7	Identification and management of Common Oral Mucosal lesions	1 Hr
8	Demonstration of Extra-oral Radiographic Techniques	1 Hr
9	Demonstration of Panoramic Radiographic Techniques	Half an Hr
10	Tour of Advanced Imaging Systems at Department of MGMCRI	1 Hr

### Integrated teaching syllabus

#### III yr BDS

SL.No	Topics	Speciality Integrating
1.	Comprehensive Case History& Examination	All specialties
2.	Clinical Pharmacology	OMDR, General Pharmacology
3.	Principles, procedures, and protocol for asepsis, sterilization, infection control	All specialties
4.	Dental Caries, Regressive alterations of teeth, Pulp & Periapical Pathologies	OMDR, Cons & Endo, Oral Pathology, Oral Surgery, Pediatric and Preventive Dentistry, Public Health Dentistry
5.	Periodontal Diseases	OMDR, Periodontics, Oral Pathology

#### IV yr BDS

SL.No	Topics	Speciality Integrating
1.	Acute and Chronic infections including Space infections, Osteomyelitis, Osteoradionecrosis and STDs	OMDR, Oral Surgery, Oral Pathology

2.	Red & White Lesions including Potentially Malignant Disorders	OMDR, Oral Surgery & Oral Pathology
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3.	Oral Cancer, Epidemiology, aetiology and Classification, Screening, diagnosis and management including Principles of radiotherapy	OMDR, Oral Surgery & Oral Pathology Prosthodontics
4.	Ulcerative and Vesiculo-bullous lesions: Acute, chronic recurrent, Multiple and single ulcers	OMDR, Oral Pathology
5.	Dermatological diseases - importance in dentistry	OMDR, Oral Pathology, Periodontics
6.	Orofacial Pigmentation	OMDR, Oral Surgery, Oral Pathology
7.	Cysts and Tumours Diagnostic protocol for clinical and radiographic differential diagnosis of Cysts, Odontogenic, non-odontogenic and developmental cysts, Cysts of soft tissues	OMDR, Oral Surgery, Oral Pathology
8.	Diseases of Tongue	OMDR, Oral Pathology, Oral Surgery
9.	Maxillary Sinus	OMDR, Oral Surgery
10.	Salivary gland disorders	OMDR, Oral Surgery, Oral Pathology
11.	Chronic Orofacial Pain & Management	OMDR, Oral Surgery
12.	Temporomandibular disorders and Imaging	OMDR, Oral Surgery, Prosthodontics
13.	Maxillofacial trauma - clinical diagnostic protocol and Imaging	OMDR, Oral Surgery
14.	Oral manifestations of systemic diseases and management of medical emergencies and medically compromised patients	OMDR, OMFS
15.	Dental Implants including Imaging	OMDR, OMFS, Periodontics & Prosthodontics
16.	Forensic Odontology	OMDR, Oral Pathology, Prosthodontics, Restorative dentistry

**Scheme of Examination**

**1. Theory: 70 Marks**

Part I : 20 MCQs (20 X 0.5 = 10 Marks)

Part II:

Section A: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)

Section B: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)

Section C: 5 VSAQs (5 X 2 = 10 Marks)

**Theory Internal assessment: 10 marks**

**Viva voce: 20 marks**

**Total =100 Marks**

**2. Practical examination: 90 Marks**

**Practical Internal Assessment – 10 Marks**

**Total – 100 Marks**

**Blueprint of theory question paper:**

PART I – MCQ- - Oral Medicine & Radiology

PART II:

Sec- A – Oral Medicine, Diagnostics & Therapeutics

Sec B- Radiology, Radiography, Diagnostics and Advanced Imaging

Sec C- VSAQ - Oral Medicine & Radiology

Section A			
If LAQ from red and white lesion, the matrix is as follows			
S.No	TOPIC	LAQ (1X10)	SAQ (3X5)
1	Ulcerovesiculobullous lesions		1x5
2	Red and white lesions	1x10	
3	Pigmented lesions		
4	Cysts and tumors		
5	Oral cancer		
6	Salivary gland diseases		1x5
7	TMJ and Orofacial pain		
8	Systemic disease and its oral manifestations		1x5
9	Pharmacology		

If LAQ from Ulcerovesiculobullous lesions, the matrix is as follows			
S.No	TOPIC	LAQ (1X10)	SAQ (3X5)
1	Ulcerovesiculobullous lesions	1x10	
2	Red and white lesions		1x5
3	Pigmented lesions		
4	Cysts and tumors		
5	Oral cancer		1x5
6	Salivary gland diseases		
7	TMJ and Orofacial pain		1x5
8	Systemic disease and its oral manifestations		
9	Pharmacology		

SECTION B				
If LAQ from radiation physics, the matrix is as follows				
S.No	TOPIC	LAQ (1X10)	SAQ (3X5)	25 MARKS
1	Radiation physics	1x10		10
2	Radiation biology			
3	Health physics		1x5	5
4	Projection geometry			
5	Intraoral and extraoral radiographic technique		1x5	5
6	Orthopantomograph and digital imaging			
7	Specialized radiographic techniques			
8	Radiographic appearance of systemic diseases			
9	X-ray film processing and quality assurance		1x5	5

If LAQ from radiation biology, the matrix is as follows				
S.No	TOPIC	LAQ (1X10)	SAQ (3X5)	25 MARKS
1	Radiation physics		1x5	5
2	Radiation biology	1x10		10
3	Health physics		1x5	5
4	Projection geometry			
5	Intraoral and extraoral radiographic technique			
6	Orthopantomograph and digital imaging			

7	Specialized radiographic techniques			
8	Radiographic appearance of systemic diseases			
9	X-ray films, processing and quality assurance		1x5	5

**PART I (MCQs) & Section C (VSAQs)**

Sl.No	TOPICS	VSAQ 5X2=10	MCQ 20 X 0.5 = 10
1	Ulcerovesiculobullous lesions	3 VSAQs	2
2	Red and white lesions		2
3	Pigmented lesions		1
4	Cysts and tumors		1
5	Oral cancer		1
6	Salivary gland diseases		1
7	TMJ and Orofacial pain		1
8	Systemic disease and its oral manifestations		1
9	Pharmacology		1
10	Radiation physics	2 VSAQs	1
11	Radiation biology		1
12	Health physics		1
13	Projection geometry		1
14	Intraoral and extraoral radiographic technique		1
15	Orthopantomograph and digital imaging		1
16	Specialized radiographic techniques		1
17	Radiographic appearance of systemic diseases		1
18	X-ray films, processing and quality assurance		1



**Blueprint of practical examination:**

Sl.No	SYLLABUS FOR OSCE/OSPE	WEIGHTAGE (%)
1.	Case history a. Introduction, Approach and Demographics b. Chief Complaint & History c. Review of Systems.	10%
2.	General examination Vital signs, Pallor, Icterus, Cyanosis, Clubbing / Lymphadenopathy	10%
3.	Local examination– TMJ/ muscles of mastication/ salivary glands/ lymph nodes/ Extra-oral examination – Swelling, ulcer, ulceroproliferative growth	10%
4.	Intra-oral examination i. Soft tissue examination (mucosal lesions- red and white/ pigmented/vesiculo-bullous lesions, swelling ulcer/ulcero-proliferative growth (1 station) ii. Hard tissue examination - Dental caries (ICCMS classification), Developmental and Regressive changes of teeth (1station)	10%
5.	Chair-side investigations – electric pulp testing/exfoliative cytology, Aspiration Cytology, Biopsy	10%
6.	Lab Investigations - Haematology / Microbiology (bacterial/fungal / viral)	05%
7.	Making of intra oral radiograph using bisecting angle/ paralleling technique –patient positioning, film placement, angulations, exposure parameters, asepsis (1 station) Intra-oral Radiographic interpretation and diagnosis– IOPA for pulpal and periapical pathologies, bite wing radiograph for Initial Proximal Caries and alveolar bone loss)	10%
8.	Radiographic faults and causes– Dark/Light radiograph, Partial Images / Elongation / Foreshortening / Stains / Film Fog	10%
9.	Radiographic accessories and its advantages, disadvantages –Conventional X-ray films (Intraoral/Extra-oral films), Film holders (Snap a ray, Rinn XCP), Cassettes, Grids, Radiation protection accessories (lead apron/ lead shield, TLD badges.	10%

10.	X-ray film processing- Developer /Fixer- manual and automatic processing- Composition, Processing parameters, Safe lighting.	10%
11.	Extra-oral Radiographic interpretation / diagnosis / identification of normal landmark (skull views / OPG) – Cyst and tumours / fractures / Unilocular / Multilocular lesions	05%

**Traditional clinical Exam: 40 Marks**

Case history and Clinical Diagnosis (Pulpal, periapical and Periodontal Diseases / Chair side Case Discussion - 25 Marks

Radiographic technique, Interpretation and Diagnosis- 10 Marks

Treatment Plan: 5 Marks

**OSCE/OSPE: (50 marks)**

The Clinical Examination will be conducted in 2 sessions

**Session 1:**

The Candidate will be expected to take Detailed Case History of a given patient, arriving at a Clinical Diagnosis and Differential diagnosis. Further the Candidate is required to make indicated Radiograph, advice for specific Investigation and arrive at a Final Diagnosis and Chart out the Specific treatment plan. (Duration 45 Mins +15 Mins)

Case History and Clinical Diagnosis/ Chair side Case Discussion – 25 Marks

Radiographic Technique, Interpretation and Diagnosis – 10 Marks

Treatment Plan – 5 Marks

Theory Viva - Voce duration not exceeding 20 Minutes per Candidate

Clinical Internal Assessment: 10 marks

**Total = 100 marks**

**Session 2: OSCE / OSPE - Stations 10x 5 = 50 marks**

Sl.No	STATION	Observed / Perform
1.	<b>STATION 1</b> Examination of Tongue	Perform / Observing station
2.	<b>STATION 2</b> Measuring of Blood pressure	Perform / Observing station
3.	<b>STATION 3</b> Temporomandibular joint Examination	Perform
	<b>REST STATION</b>	
4.	<b>STATION 4</b> Interpretation of Panoramic Radiograph (Normal/ Pathology)	Non Observed

5.	<b>STATION 5</b> Identification of Radiographic accessories	Non observed
6.	<b>STATION 6</b> Interpretation of Intraoral periapical radiograph (Normal/ Pathology)	Perform
7.	<b>STATION 7</b> Identify the Radiographic Films and mention its indications	Non observed
	<b>REST STATION</b>	
8.	<b>STATION 8</b> Interpretation of Faulty Radiograph	Non Observed
9.	<b>STATION 9</b> Identify the Mucosal Lesion	Non Observed
10.	<b>STATION 10</b> Write the prescription for a given condition (Periapical Pathology, Swelling)	Non Observed

**Recommended text books**

1. Greenberg, Glick, Ship, Burket's Oral Medicine. 10, 11, 12<sup>th</sup> edition. BCDecker.
2. Stuart. C. White, Michael J Pharoah. Oral Radiology. Principles and Interpretation. 6, 7<sup>th</sup> edition. Elsevier
3. Hutchinson. Hutchinson's Clinical Medicine. 22<sup>nd</sup> edition. Saunder.
4. Shivapathasundaram. Shafer's Text book of Oral pathology. 5<sup>th</sup> edition. Elsevier.
5. Freney R Karjodhkar. Textbook of Dental and maxillofacial Radiology. 2<sup>nd</sup> edition Jaypee
6. JoenLannucci Haring, Lauria Jansen. Dental Radiography. Principles and techniques. 2<sup>nd</sup> edition. Elsevier.
7. Somen Das. A Manual on Clinical Surgery. 10<sup>th</sup> edition.

(UNIVERSITY MODEL QUESTION PAPER)

III BDS EXAMINATION

Oral Medicine & Radiology

Time: 3 hours

Max. Marks: 70

Illustrate your answers with suitable diagram

PART - I

MODEL MULTIPLE CHOICE QUESTIONS:

(20 x 0.5=10)

1. Solid raised lesions in the oral mucosa that are greater than 1 cm in diameter are called as
  - a. Papules
  - b. Macules
  - c. Plaques
  - d. Pustules
2. Which division of trigeminal nerve is MOST commonly involved in Shingles?
  - a. Maxillary
  - b. Mandibular
  - c. Ophthalmic
  - d. Lingual
3. The virus causing oral hairy leukoplakia is
  - a. Varicella
  - b. Epstein Barr
  - c. Papiloma
  - d. Cocksackie
4. Osteitis fibrosa cystic is seen
  - a. Hyperthyroidism
  - b. Hypothyroidism
  - c. Hyperparathyroidism
  - d. Hypoparathyroidism
5. a. Oral submucous fibrosis is a chronic disease which affects oral mucosa, pharynx and upper two third of oesophagus.

Because

- b. Arecoline decreases water retaining proteoglycans and favours increased type I collagen production.

A: If both \_a\_ and \_b\_ are true and \_b\_ is the reason for \_a\_

B: If both \_a\_ and \_b\_ are true but are not causally related C:

If \_a\_ is true and \_b\_ is false

D: If \_a\_ is false and \_b\_ is true

E: If both \_a\_ and \_b\_ are false

6. Which of the following is the MOST common oral cancer?
  - a. Basal cell carcinoma
  - b. Squamous cell carcinoma

- c. Malignant melanoma  
d. Adenocarcinoma
7. The drugs used for management of xerostomia are
1. Cevimeline
  2. Atropine
  3. Pilocarpine
  4. Glycopyrolate
- A: If only 1, 2 and 3 are correct  
B: If only 1 and 3 are correct  
C: If only 2 and 4 are correct  
D: If only 4 is correct  
E: If all 4 are correct
8. Gingival enlargement is a side effect of
1. Phenytoin
  2. Nifedipine
  3. Cyclosporine
  4. Enalapril
- A: If only 1,2 and 3 are correct  
B: If only 1 and 3 are correct  
C: If only 2 and 4 are correct  
D: If only 4 is correct  
E: If all 4 are correct
9. Match the following

Microbial agent	Condition
1. Coxsackie Virus	A. Kaposi sarcoma
2. HIV Virus	B. Herpangina
3. Candida	C. Oral squamous cell carcinoma
4. Human Papilloma Virus 16	D. Denture stomatitis
	E. Hairy leukoplakia

- 1..... 2.... 3..... 4.....
10. Cyclic neutropenia recurs with a regular periodicity of (days)
- a. 7
  - b. 14
  - c. 21
  - d. 28
11. In bisecting angle technique, the film is placed
- a) Parallel to the tooth
  - b) As close as possible to the tooth
  - c) Parallel to the bisector
  - d) Perpendicular to the bisector

12. The bony projection which occurs at the periphery of the articulating surface of the temporomandibular joint in degenerative joint disease is called
- Ely's cyst
  - Chondromatosis
  - Chondrocalcinosis
  - Osteophyte
13. Sialography of normal parotid salivary gland shows an appearance of
- Sausage string
  - Fruit laden tree
  - Leaf less tree
  - Ball in hand
14. The standard extraoral radiographic view for fracture of the Zygomatic arch is
- Lateral skull
  - Submentovertex
  - Trans cranial
  - Lateral oblique
15. Which of the following is true of film badges in dental radiography?
- 1) Should be worn by the radiographer during an exposure
  - 2) Can be shared between employees
  - 3) Should be worn inside the lead apron
  - 4) Should be monitored everyday
- A: If only 1, 2 and 3 are correct  
B: If only 1 and 3 are correct  
C: If only 2 and 4 are correct  
D: If only 4 is correct  
E: If all 4 are correct
16. In dental radiography, the factors controlling the quantity of X ray radiation are
- 1) Kilovoltage peak
  - 2) Milliampere
  - 3) Filtration
  - 4) Exposure time
- A: If only 1, 2 and 3 are correct  
B: If only 1 and 3 are correct  
C: If only 2 and 4 are correct  
D: If only 4 is correct  
E: If all 4 are correct
17. X-rays cause radiation damage primarily by their property of
- Penetration
  - Radioactivity
  - Electromagnetic induction
  - Ionization
18. Match the following film processing and handling errors with their radiographic appearance
- |                   |                        |
|-------------------|------------------------|
| 1. Overdeveloping | a. light               |
| 2. Underexposure  | b. yellow-brown stains |

- |                             |                |
|-----------------------------|----------------|
| 3. Air bubbles              | c. clear       |
| 4. Exhausted Fixer          | d. dark        |
| 5. Reticulation of emulsion | e. cracked     |
|                             | f. grey        |
|                             | g. white spots |

1..... 2.... 3..... 4.....

19. The radiographic appearance of osteosarcoma may be described as
- Sun ray appearance
  - Multilocular radiolucency
  - Punched out radiolucencies
  - Ground glass appearance
20. a. E-speed films are recommended for intra-oral radiography

**Because**

- E-speed film results in less radiation exposure for the patient.
- A: If both \_a' and \_b' are true and \_b' is the reason for \_a'  
 B: If both \_a' and \_b' are true but are not causally related  
 C: If \_a' is true and \_b' is false  
 D: If \_a' is false and \_b' is true  
 E: If both \_a' and \_b' are false

## PART - II

### SEC: A – ORAL MEDICINE, DIAGNOSTICS & THERAPEUTICS

LONG ANSWER QUESTION: 1X 10 = 10

- Describe in detail about the normal anatomy, functions of TMJ, Write in detail about the examination of TMJ and muscles of mastication.

SHORT ANSWER QUESTIONS: 3 X 5 = 15

- Discuss Indications, Method, Advantages and disadvantages of Toluidine blue staining of Oral mucosal lesions
- TNM Staging of Oral Cancer and Its significance
- Hairy leukoplakia

**SEC: B - RADIOLOGY, RADIOGRAPHY, DIAGNOSTICS AND  
ADVANCED IMAGING**

**LONG ANSWER QUESTION:**

**1X 10 = 10**

5. Define dosimetry. Write a short note on Thermoluminescent Dosimeter and its indications, limitations, advantages and disadvantages.

**SHORT ANSWER QUESTIONS:**

**3 X 5 = 15**

6. Discuss the interaction of X ray with matter with neat, labelled diagrams
7. Enumerate and describe the radiolucent and radio opaque landmarks in maxilla with neat diagram
8. Discuss Hard Tissue Complications of Head & Neck radiotherapy

**SEC: C - ORAL MEDICINE & RADIOLOGY**

**VERY SHORT ANSWER QUESTIONS:**

**5 X 2 = 10**

9. Mention 4 Potentially malignant disorders of the Oral Cavity
10. Mention 4 conditions with acute multiple ulcerations of the oral mucosa
11. Mention 4 Most common Oral Manifestations of Acquired Immunodeficiency Syndrome.
12. Enumerate 4 most common Periapical Radiolucencies
13. Mention 4 Different Radiographic projections to view TMJ



**ORAL & MAXILLOFACIAL SURGERY**

Number of hours prescribed by DCI				
Theory hours		Practicals hours		Total
III year BDS 20	IV year BDS 50	III year BDS 70	IV year BDS 200	340
Total: 70		Total: 270		

**GOAL**

—To produce a graduate who is competent in performing extraction of teeth under both local and general anaesthesia, prevent and manage related complications, acquire a reasonable knowledge and understanding of the various diseases, injuries, infections occurring in the Oral & Maxillofacial region and offer solutions to such of those common conditions and has an exposure in to the in-patient management of maxillofacial problems.

**OBJECTIVES****KNOWLEDGE & UNDERSTANDING:**

1. Able to apply the knowledge gained in the related medical subjects like pathology, microbiology and general medicine in the management of patients with oral surgical problem.
2. Able to diagnose, manage and treat (understand the principles of treatment of) patients with oral surgical problems.
3. Knowledge of range of surgical treatments.
4. Ability to decide the requirement of a patient to have oral surgical specialist opinion or treatment.
5. Understand the principles of in-patient management.
6. Understanding of the management of major oral surgical procedures and principles involved in patient management.
7. Should know ethical issues and communication ability.

**SKILLS:**

1. A graduate should have acquired the skill to examine any patient with an oral surgical problem in an orderly manner. Be able to understand requisition of various clinical and laboratory investigations and is capable of formulating differential diagnosis.
2. Should be competent in the extraction of teeth under both local and general anaesthesia.
3. Should be able to carry out certain minor oral surgical procedures under L.A. like frenectomy, alveolar procedures & biopsy etc.

4. Ability to assess, prevent and manage various complications during and after surgery.
5. Able to provide primary care and manage medical emergencies in the dental office.
6. Understanding of the management of major oral surgical problems and principles involved in inpatient management.

**COMPETENCIES**

At the completion of the undergraduate training programme the graduates shall be competent in the following:

1. Able to apply the knowledge gained in the basic medical and clinical subjects in the management of patients with surgical problems
2. Able to diagnose, manage and treat patients with basic oral surgical problems
3. Have a broad knowledge of maxillofacial surgery and oral implantology
4. Should be familiar with legal, ethical and moral issues pertaining to the patient care and communication skill
5. Should have acquired the skill to examine any patient with an oral surgical problem in an orderly manner
6. Understand and practice the basic principles of asepsis and sterilization
7. Should be competent in the extraction of the teeth under both local and general anaesthesia
8. Competent to carry out certain minor oral surgical procedure under LA, like trans-alveolar extraction, frenectomy, dento alveolar procedures, simple impaction, biopsy etc
9. Competent to assess, prevent and manage common complications that arise during and after minor oral surgery
10. Able to provide primary care and manage medical emergencies in the dental office
11. Familiar with the management of major oral surgical problems and principles involved in the in-patient management

**SYLLABUS III YEAR**

**Theory: no: of hours = 20**

Sl no	TOPIC	System weightage	Number of hours	Must know (M)/ Desirable to know (D)/ Nice to know (N)
1.	Introduction - Definition, aims, objectives and scope of oral surgery	5%	1	M

2.	Local Anaesthesia	45%	9	M
3.	General anesthesia. [GA]	20%	4	D
4.	Exodontia	20%	4	M
5.	Management of medically compromised patients / Medical problems in dentistry	10%	2	M

#### SYLLABUS IV YEAR

Theory: no: of hours = 50

Sl no	TOPIC	System weightage	Number of hours	Must know (M)/ Desirable to know (D)/ Nice to know (N)
1	Dento-alveolar surgery	8%	4	M
2	Endodontic surgery	4%	2	D
3	Infections	8%	4	M
4	Cysts of the jaws	6%	3	M
5	Oral implantology	4%	2	N
6	Ethics	2%	1	M
7	Pre prosthetic surgery	4%	2	D
8	Diseases of maxillary sinus	6%	3	D
9	TMJ disorders	8%	4	N
10	Tumors	12%	5	N
11	Fractures of the jaws	16%	8	M
12	Developmental deformities	6%	3	N
13	Salivary gland diseases	4%	2	M
14	Neurological disorders	6%	3	D
15	Cleft lip and palate	4%	2	N
16	Pre-cancerous lesions and conditions	2%	1	M

**Clinicals: no. of hours = 270**

Sl.No	Clinical cases	Observe / assist / perform
1	Examination of patient with oral surgical problem in a orderly manner	Observe/Perform
2	Instrumentation	Observe/Perform
3	Suturing techniques	Observe/Perform
4	Frenectomy	Assist/Perform
5	Alveolar procedures	Assist/Perform
6	Biopsy	Assist/Perform
7	Primary care & Management of medical emergencies	Observe/Perform
8	Assessment, prevention & management of common complication that arises during and after minor oral surgery	Observe/Perform
9	Extraction – 30 cases	Observe/Perform
10	Incision & Drainage	Observe/Perform
11	Enucleation & Marsupialisation	Observe
12	Fracture reduction and Stabilisation under GA	Observe
13	Dental Implants	Observe
14	Orthognathic surgery	Observe

**Integrated teaching syllabus (to include topics that are common with different specialities)**

Sl.No	Clinical cases	Observe / assist / perform
1	Periapical Pathologies and space infections	OMFS, Oral Pathology, Oral medicine,cons and endo
2	Orofacial Pain- Differential Diagnosis	Oral Surgery, Oral medicine
3	Potentially malignant Disorders & Oral Cancer	Oral Surgery & Oral Pathology, Oral medicine
4	Temporomandibular disorders	O MED, Oral Surgery, Prosthodontics
5	Oral Manifestations of Systemic Disorders and Management of Medically Compromised patients	Oral Surgery, Oral Pathology, Oral medicine

6	Cysts and Tumours	Oral Surgery, Oral Pathology, Oral medicine
7	Diseases of Tongue	Oral Surgery, Oral Pathology, Oral medicine
8	Oral cancer	Oral Surgery, Oral Pathology, Oral medicine
9	Salivary gland disorders	Oral Surgery, Oral Pathology, Oral medicine
10	Maxillary Sinus	Oral Surgery, Oral medicine
11	Maxillofacial trauma	Oral Surgery, Oral medicine
12	Dentofacial deformity	Oral Surgery, orthodontics
13	Cleft lip, Cleft palate	Oral Surgery, Oral Pathology, Prosthodontics, Orthodontics
14	Implants	Oral Surgery, Prosthodontics, Periodontics

**Chair-side teaching syllabus**

SLNo	Topics
1	Examination of patient with oral surgical problem in a orderly manner
2	Demonstration of Instruments used in exodontia
3	Demonstration of suturing techniques
4	Prescription writing, Referral forms, Opinion Seeking Forms and Investigation Requisition forms
5	Diagnosis and management of medical emergencies
6	Assessment, prevention & management of common complication that arises during and after minor oral surgery
7	Sterilisation and aseptic techniques
8	Demonstration of injection techniques
9	Demonstration of extraction techniques

**Scheme of Examination**

**1. Theory: 70 Marks**

Part I: 20 MCQs (20 X 0.5 = 10 Marks)

Part II:

**Oral & Maxillofacial Surgery**

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Section A:	1 LAQ (1 X 10 = 10 Marks) 3 SAQs (3 X 5 = 15 Marks)
Section B:	1 LAQ (1 X 10 = 10 Marks) 3 SAQs (3 X 5 = 15 Marks)
Section C:	5 VSAQs (5 X 2 = 10 Marks)

**Theory Internal assessment:** 10 marks**Viva voce:** 20 marks**Total = 100 Marks****2. Practical examination:** 90 Marks**Practical Internal Assessment – 10 Marks****Total – 100 Marks****Blue print of the question paper**

The paper shall consist of 3 sections as follows:

**PART I(MCQs):** Oral & Maxillofacial Surgery (10 marks)**PART II:****Section A:** Applied Basic Sciences, Medical Emergencies, Minor Oral Surgery, Trauma (25 marks)**Section B:** Cysts And Tumors, Oral Cancer, Temporomandibular Joint Surgery, Orthognathic Surgery, General Anesthesia, Cleft Lip and Palate, Diseases Of Salivary Glands (25 marks)**Section C (VSAQs):** Oral & Maxillofacial Surgery (20 marks)

The questions can be distributed as follows:

70 % from the Must know areas

20 % from Desirable to know areas

10 % from Nice to know areas

MCQs to be selected from must know areas.

**In section - A, if long answer question is from minor oral surgery, then the blue print will be**

Sl no	TOPIC	LAQ (1*10-10 marks)	SAQ (3*5-15)	TOTAL (25 marks)
1	APPLIED BASIC SCIENCES		1	5
2	MEDICAL EMERGENCIES		1	5
3	MINOR ORAL SURGERY. (Local anesthesia, exodontia, principles of oral surgery) preprosthetic surgery, infections osteoradionecrosis, maxillary sinus, nerve disorders, implantology	1		10
4	TRAUMA		1	5

**In section – B, if long answer question is from temporo-mandibular joint then the blue print will be**

Sl no	TOPIC	LAQ (1*10-10 marks)	SAQ (3*5-15)	TOTAL (25 marks)
1	CYSTS AND TUMORS		1	5
2	ORAL CANCER			
3	TEMPOROMANDIBULAR JOINT SURGERY	1		10
4	ORTHOGNATHIC SURGERY		1	5
5	GENERAL ANESTHESIA			
6	CLEFT LIP AND PALATE			
7	DISEASES OF SALIVARY GLANDS		1	5

**BLUEPRINT FOR PART I (MCQs) & SECTION – C (VSAQs)**

Sl no	TOPIC	VSAQ (5 X 2= 10)	MCQ (20 X 0.5 = 10)	TOTAL (20 marks)
1	Introduction - Definition, aims, objectives and scope of oral surgery		1	0.5
2	Local Anaesthesia	1		2
3	General anesthesia. [GA]		1	0.5
4	Exodontia		1	0.5
5	Management of medically compromised patients/ medical problems in dentistry		1	0.5
6	Dento-alveolar surgery		1	0.5
7	Endodontic surgery		1	0.5
8	Infections	1	1	2.5
9	Cysts of the jaws		1	0.5
10	Oral implantology	1	1	2.5
11	Ethics		1	0.5
12	Pre prosthetic surgery		1	0.5
13	Diseases of maxillary sinus		1	0.5
14	TMJ disorders	1	1	2.5
15	Tumors		1	0.5
16	Fractures of the jaws	1	1	2.5
17	Developmental deformities		1	0.5
18	Salivary gland diseases		1	0.5

19	Neurological disorders		1	0.5
20	Cleft lip and palate		1	0.5
21	Pre-cancerous lesions and conditions		1	0.5

### Blue print of Clinical Examination

The Clinical Examination will be conducted in 2 sessions

#### Session 1:

The Candidate will be expected to take Detailed Case History of a given patient, arriving at a Clinical Diagnosis and Differential diagnosis. Further the Candidate is required to administer local anaesthesia and perform dental extraction and deliver post extraction instructions.

Case History – 10 Marks

Extraction – 30 Marks

OSCE – 50 Marks (10 stations with 5 marks each)

<b>STATION 1</b> (ANATOMY)	<b>STATION 2</b> (IMPACTION)	<b>STATION 3</b> (CYST)	<b>STATION 4</b> (TMJ)
<b>STATION 5</b> (IMPLANT)	<b>STATION 6</b> (SUTURING)	<b>STATION 7</b> (ARMAMENTARIUM)	<b>STATION 8</b> (INFECTION)
<b>STATION 9</b> (TRAUMA)	<b>REST</b>	<b>STATION 10</b> (UNIVERSAL PRECAUTIONS)	

#### Session 2 :

Theory Viva- Voce (duration not exceeding 20 Mins per Candidate) - 20 marks

#### Recommended books

Impacted teeth; Alling John F et al.  
 Principles of oral and maxillofacial surgery; Vol.1,2& 3 Peterson LJ et al.  
 Text book of oral and maxillofacial surgery; Srinivasan B.  
 Handbook of medical emergencies in the dental office, Malamed SF.  
 Killeys Fractures of the mandible; Banks P.  
 Killeys fractures of the middle 3rd of the facial skeleton; Banks P.  
 The maxillary sinus and its dental implications; Mc Govanda  
 Killey and Kays outline of oral surgery – Part-1; Seward GR et al  
 Essentials of safe dentistry for the medically compromised patients; Mc Carthy FM  
 Oral & maxillofacial surgery, Vol 2; Laskin DM  
 Extraction of teeth; Howe.GL  
 Minor Oral Surgery; Howe.GL  
 Contemporary oral and maxillofacial surgery; Peterson I.J.& EA  
 Oral and maxillofacial infections; Topazian RG & Goldberg MH



(UNIVERSITY MODEL QUESTION PAPER)

IV BDS EXAMINATION

ORAL & MAXILLOFACIAL SURGERY

Time: 3 hour

Max. Marks: 70

PART - I

MODEL MULTIPLE CHOICE QUESTIONS:

20 X 0.5 =10

1. Which of the following complication is more likely following extraction performed in a chronic alcoholic patient?
  - a) Facial space infection
  - b) Dry socket
  - c) Bleeding
  - d) Syncope
2. Following are local hemostatic agent
  1. Gel foam
  2. Surgicel
  3. Collaplug
  4. Aspirin
  - a) If only 1,2 and 3 are correct
  - b) If only 1 and 3 are correct
  - c) If only 2 and 4 are correct
  - d) If only 4 are correct
  - e) If all 4 are correct
3. Best time for extraction in pregnancy patient is
  - a) First trimester
  - b) Second trimester
  - c) Third trimester
  - d) Fourth trimester
4. A) The primary objective of doing incision and drainage in maxillofacial infection is to drain pus and Thereby  
B) Decrease the microbial load, increases vascularity and facilitates reach of antibiotics, oxygen and defence cell.
  - a) If both \_A\_ and \_B\_ are true and \_B\_ is the reason for \_A\_
  - b) If both \_A\_ and \_B\_ are true but are not causally related
  - c) If \_A\_ is true and \_B\_ is false
  - d) If \_A\_ is false and \_B\_ is true
  - e) If both \_A\_ and \_B\_ are false
5. Minimum distance between two dental implants placed adjacent to each other must be----- mm
  - a) 2mm
  - b) 1.5mm
  - c) 1mm
  - d) 3mm

6. Each of the following statements about vasoconstrictions and local-anesthesia is correct EXCEPT
- Adding vasoconstrictor reduces systemic toxicity
  - Adding vasoconstrictor prolong the duration of action
  - Adding vasoconstrictor increases the pH of LA solution
  - Adding vasoconstrictor causes profound anesthesia
7. Aspiration before injection of local anesthetic agents prevents
- Excessive force being used during injection
  - Intra vascular injection
  - Post operative injection
  - None of the above
8. MATCH THE FOLLOWING: -
- |                      |                               |
|----------------------|-------------------------------|
| 1) Cross bar         | - A) Wedge principle          |
| 2) Straight elevator | - B) Double wedge             |
| 3) Apexo elevator    | - C) First order lever        |
| 4) Cow horn forceps  | - D) Wheel and axle           |
|                      | -E) 2nd order lever principle |
- 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_
9. Berger's flap is used for
- TMJ dislocation
  - Oro- antral communication
  - Benign lesion
  - Malignant tumours
10. MATCH THE FOLLOWING: -
- |                        |                          |
|------------------------|--------------------------|
| 1) Rigid fixation      | - A) Intra-osseous wings |
| 2) Semi rigid fixation | - B) Lug screws          |
| 3) Non rigid fixation  | - C) Miniplates          |
|                        | - D) POP splint          |
11. Gillis approach is used in
- Open reduction of zygomatic fracture
  - Mandible
  - Closed reduction of zygomatic fracture
  - Orbital fracture
12. A) Common type of fracture in children is Greenstick fracture

**Because**

- B) The rate of healing is faster in children
- If both \_A' and \_B' are true and \_B' is the reason for \_A'
  - If both \_A' and \_B' are true but are not causally related
  - If \_A' is true and \_B' is false
  - If \_A' is false and \_B' is true
  - If both \_A' and \_B' are false

13. Salivary calculus is more common in submandibular gland due to
  - 1) Torturous course of the duct
  - 2) Mucous content of saliva
  - 3) Large size of the gland
  - 4) Its relation to adjacent vital structures
  - a) If only 1, 2 and 3 are correct
  - b) If only 1 and 3 are correct
  - c) If only 2 and 4 are correct
  - d) If only 4 are correct
14. Protein content less than 4mg/ml is seen in
  - a) Dentigerous cyst
  - b) Periapical cyst
  - c) Keratocyst
  - d) Botryoid cyst
15. Most common cause of death in Ludwig's angina is
  - a) Mediastinitis
  - b) Pleural effusion
  - c) Sepsis
  - d) Respiratory obstruction
16. Masticatory space infection includes all of the following EXCEPT
  - a) Sub-masseteric space
  - b) Pterygomandibular space
  - c) Temporal space
  - d) Buccal space
17. Involucrum is
  - a) Involvement of cancrum oris
  - b) Involvement of dead bone
  - c) New live bone around dead bone
  - d) Sclerotic bone around dead bone
18. Tinel's sign is meant for
  - a) Nerve regeneration
  - b) Nerve degeneration
  - c) Nerve cross over
  - d) Nerve injury
19. Parade ground fracture of mandible usually involves
  - a) Bilateral condyle & symphysis
  - b) Bilateral parasymphysis & angle
  - c) Bilateral angle & symphysis
  - d) Bilateral body & parasymphysis
20. Match the following
 

a) Mersilk	- Natural absorbable
b) Polyglactin 910	- Synthetic non-absorbable
c) Nylon	- Synthetic absorbable
d) Chromic catgut	- Natural, non-absorbable

**PART - II**  
**Section – A (25 marks)**

**LONG ANSWER QUESTIONS:** (1X10=10marks)

1. Define local anesthesia [2]. Classify local anesthesia [4] and explain the various theories of local anesthesia, enumerating the mechanism of action [4].

**SHORT ANSWER QUESTIONS:** (3X5=15marks)

2. Write in detail about bacterial endocarditis prophylaxis before performing dental extractions?
3. Describe briefly regarding clinical features and management of a hyperventilating patient?
4. Explain in detail about Le-fort I lines?

**Section - B (25 marks)**

**LONG ANSWER QUESTIONS** (1X10=10marks)

5. Define apertognathia [2], discuss the various causes for anterior open bite [3] and describe various orthognathic surgical procedures for the management of anterior open bite [5]?

**SHORT ANSWER QUESTIONS** (3X5=15marks)

6. Describe briefly about the various neck dissection techniques?
7. Describe the possible complications during temporomandibular joint surgeries?
8. Define cyst? Draw the flowchart for classification of cysts of jaws, oral and facial soft tissues

**Section - C**

**VERY SHORT ANSWER QUESTIONS:** (5X2 = 10 marks)

9. What is Coleman's sign?
10. Enlist any two complications of TMJ surgery.
11. Mention any 2 drugs used in the management of anaphylactic shock.
12. List the boundaries of pterygomandibular space.
13. Define dental implants.

## PERIODONTOLOGY

Number of hours prescribed by DCI				
Theory hours		Clinical hours		Total
III year BDS 40	IV year BDS 80	III year BDS 52	IV year BDS 72	244
Total: 120		Total: 124		

### GOAL

To prevent and control oral diseases and promote oral health through organized oral hygiene practices.

### OBJECTIVES

The student shall acquire the skill to perform dental scaling, diagnostic tests of periodontal diseases; to use the instruments for periodontal therapy and maintenance of the same.

The student shall develop attitude to impart the preventive measures namely, the prevention of periodontal diseases and prevention of the progress of the disease.

The student shall also develop an attitude to perform the treatment with full aseptic precautions; shall develop an attitude to prevent iatrogenic diseases; to conserve the tooth to the maximum possible time by maintaining periodontal health and to refer the patients who require specialist's care.

### COMPETENCIES

At the completion of the undergraduate training programme the graduates shall be competent in the following:

### KNOWLEDGE

- Diagnose the patient's periodontal problem, plan appropriate periodontal treatment
- Familiar with concepts of osseointegration and basic surgical aspects of Implantology

### SKILLS

- Competent to perform oral prophylaxis, subgingival scaling, root planning and minor periodontal surgical procedures

### ATTITUDE

- Competent to educate and motivate the patient
- Give proper post treatment instructions and do periodic recall and evaluation

## SYLLABUS CONTENT

THIRD YEAR – Total hours – 40

Sl no	TOPIC	Weightage	Must know (M)/ Desirable to know (D)/ Nice to know (N)	No of hours
NORMAL PERIODONTIUM				
1	The gingiva	5%	M	2
2	The tooth supporting structures 			

15	Acute Gingival Infections	2.5%	M	1
16	Desquamative Gingivitis	2.5%	M	1
17	Periodontal pocket	5%	M	2
18	Abscess of periodontium	2.5%	M	1
19	Chronic periodontitis	2.5%	M	1
20	Aggressive periodontitis	2.5%	M	1

**FINAL YEAR - Theory Hours - 80**

Sl no	TOPIC	Weightage	Must know (M)/ Desirable to know (D)/ Nice to know (N)	No of hours
<b>PERIODONTAL PATHOLOGY</b>				
21	Bone Loss and Patterns of Bone Destruction	1.25%	M	1
22	Periodontal Response to External Forces ‣ Trauma from occlusion ‣ Pathologic tooth migration	1.25%	M	1
23	Pathology & Management of Periodontal Problems in Patients With HIV Infection	1.25%	M	1
24	Periodontal medicine: impact of periodontal infection on systemic health			
	‣ Periodontal disease and coronary heart disease, Stroke ‣ Periodontal disease and pregnancy outcome ‣ Periodontal disease & Diabetes mellitus	2.5%	M	2
	‣ Periodontal disease and chronic obstructive pulmonary disease ‣ Periodontal disease and acute respiratory infections	1.25%	N	1
<b>DIAGNOSIS, PROGNOSIS &amp; TREATMENT PLAN</b>				
25	Clinical diagnosis	10%	M	4
26	Clinical risk assessment	1.25%	M	1
27	Determination of prognosis	1.25%	M	1
28	Rationale for periodontal treatment & treatment plan	2.5%	M	2

MANAGEMENT OF PATIENT WITH PERIODONTAL DISEASES				
29	Periodontal treatment of medically compromised patients			
	<div>➤ Cardiovascular diseases</div> <div>➤ Endocrine disorders</div> <div>➤ Pregnancy</div> <div>➤ Hemorrhagic &amp; Blood dyscrasias</div>	7.5%	M	3
	➤ Renal, Liver, Pulmonary, Chemotherapy, Infectious disease		D	
DIAGNOSIS & TREATMENT PLAN OF PERIODONTAL EMERGENCIES				
30	Treatment of acute gingival diseases	1.25%	M	1
31	Treatment of periodontal abscesses	1.25 %	M	1
NON SURGICAL PERIODONTAL THERAPY				
32	Phase I periodontal therapy	1.25%	M	1
33	Plaque biofilm control	2.5%	M	2
34	Periodontal instruments & instrumentation	2.5%	M	2
35	Scaling & root planning	2.5%	M	2
36	Anti infective therapy	2.5%	M	2
37	Host modulation	1.25%	M	1
38	Breadth malodor	1.25%	M	1
SURGICAL TREATMENT				
40	Phase II periodontal therapy	1.25%	M	1
41	Periodontal & peri implant surgical anatomy	1.25%	M	1
42	General principles of periodontal surgery	1.25%	M	1
43	Gingival surgical techniques	1.25%	M	1
44	Periodontal flap	2.5%	M	2
45	Treatment of gingival enlargements	1.25%	M	1
46	Resective osseous surgery	1.25%	M	1
47	Periodontal regeneration & Reconstructive surgery			
	<div>➤ Non bone graft associated tech</div> <div>➤ Graft materials associated tech</div>	2.5%	M	2
48	Furcation involvement & management	1.25%	M	1



49	Periodontal plastic & esthetic surgery			
	> Augmentation apical to recession > Augmentation coronal to recession	2.5%	M	2
50	Recent advances in surgical techniques	1.25%	D	1
<b>MULTIDISCIPLINARY APPROACH FOR MANAGEMENT OF PERIODONTAL DISEASES</b>				
60	Diagnosis & management of endodontic periodontic lesions	1.25%	M	1
61	Periodontal restorative interrelationships	1.25%	D	1
62	Adjunctive role of orthodontic therapy	1.25%	D	1
<b>SUPPORTIVE CARE</b>				
62	Supportive periodontal treatment	1.25%	M	1
<b>ORAL IMPLANTOLOGY</b>				
63	Biological aspects of dental implants	1.25%	M	1
64	Diagnosis & treatment planning in implantology	1.25%	D	1
65	Surgical concepts of implant therapy	1.25%	D	1
66	Peri implant disease & management	1.25%	M	1
67	Supportive implant treatment	1.25%	M	1

**CLINICAL TEACHING SYLLABUS**

S.No	Clinical	No of cases	Observe / Assist / Perform
1	Case History Recording	01	Observe
2	Case History Recording	05	Perform
3	Intraoral Periapical Radiography	05	Perform
4	Hand Scaling / Subgingival curettage & root planning	05	Observe
5	Oral hygiene instructions	05	Observe
6	Hand Scaling with oral hygiene instructions	25	Perform
7	Subgingival curettage & root planning	5	Perform
8	Ultrasonic scaling	20	Perform

**CHAIRSIDE TEACHING SYLLABUS**

S.No	Topic	Hours
<b>STERILIZATION AND INFECTION CONTROL</b>		
1	Sterilization and disinfection	1
2	Biomedical waste disposal	1
<b>CASE HISTORY</b>		
3	General examination – vital signs	1
4	Oral/Gingival/Periodontal examination	2
5	Radiographic and laboratory interpretations	1
6	Prognosis & Treatment plan	1
<b>INSTRUMENTATION</b>		
7	Periodontal instruments	1
8	Principles of instrumentation	1
<b>ORAL PROPHYLAXIS</b>		
9	Scaling, sub gingival curettage& root planning	1
10	Polishing &OHI	1
<b>SURGICAL TECHNIQUES</b>		
11	Abscess drainage	1
12	Gingival surgical techniques	1
13	Mucogingival surgical techniques	1
14	Suturing and periodontal dressing	1
15	Post operative care	1

**INTEGRATED TEACHING TOPICS / SYLLABUS**

S.No	Topic	Hours	Departments involved
1	Periodontic -endodontic continuum	Pulpal disease	Cons & Endo
		Effect of periodontitis on dental pulp	Cons & Endo
		Differences between pulpal and periodontal diseases	Perio
		Management of endo –perio lesions	Perio

2	Pre prosthetic surgery	Mucogingival problems	Perio
		Ridge and socket preservation procedures	Prosthodontics & perio
		Crown lengthening procedures	Perio
		Alveolar ridge reconstruction	Perio
		Biologic considerations for restorative relationships (biologic width)	Perio
3	Perio-ortho inter relationship	Classification on malocclusion	Ortho
		Trauma from occlusion	Perio
		Adjunctive Orthodontic therapy in periodontal management	Perio
		Pre orthodontic osseous surgery	Perio
		Orthodontic treatment of osseous defects and gingival discrepancies	Perio
4	Oral implantology	Biological aspects of oral implants	Perio
		Implant geometry and surface characteristics	Prosthodontics
		Hard and soft tissue interface	Perio
		Clinical and radiographic evaluation of implant patient	Perio and Prosthodontics
		Diagnostic imaging for implants	Oral medicine and Perio
		Implant surgical procedures	Perio
		Biomechanics and prosthetic considerations for implants	Prosthodontics
		Implant related complications and failures	Perio
6	Oral manifestations of dermatologic disorders	Desquamative gingivitis	Perio, oral pathology, oral medicine
7	Periodontal medicine	Periodontitis & systemic associations	Perio & general medicine

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**Scheme of Examination**
**1. Theory: 70 Marks**

Part I: 20 MCQs (20 X 0.5 = 10 Marks)

Part II:

Section A: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)Section B: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)

Section C: 5 VSAQs (5 X 2 = 10 Marks)

**Theory Internal assessment: 10 marks****Viva voce: 20 marks****Total = 100 Marks****2. Practical examination: 90 Marks****Practical Internal Assessment – 10 Marks****Total – 100 Marks****Blue print of question paper**

The questions can be distributed as follows: please refer to Question bank and syllabus

- ☐ 70 % should be from the Must know areas
- ☐ 20 % should be from Desirable to know areas
- ☐ 10 % should be from Nice to know areas
- ☐ MCQs should be from must know areas

**PART: 1 - MCQs:****20x0.5 = 10 marks**

Question num	Topics	M/D/N
1 - 10	Biologic basis of Periodontology	M
11- 20	Clinical periodontics and Oral Implantology	M

**PART: 1 - SECTION A & B****MATRIX I:**

If the LAQ is from normal periodontium, the matrix is as follows:

S.No	SECTION A	LAQ (1X10=10)	SAQ (3X5=15)	25 MARKS
1	Normal Periodontium	1		10
2	Etiology of periodontal diseases		1	5
3	Gingival / periodontal pathology		1	5
4	Periodontal disease and systemic health		1	5
5	Classification of periodontal disease			0

If the LAQ is from treatment of gingival and periodontal diseases, the matrix is as follows:

S.No	SECTION B	LAQ (1X10=10)	SAQ (3X5=15)	25 MARKS
1	Treatment of gingival and periodontal diseases – Surgical, periodontal emergencies	1		10
2	Diagnosis, prognosis & treatment plan		1	5
3	Treatment of gingival and periodontal diseases – Non surgical		1	5
4	Oral Implantology			0
5	Supportive periodontal therapy		1	5

### **MATRIX 2:**

If the LAQ is from Etiology of periodontal diseases, the matrix is as follows

S.No	SECTION A	LAQ (1X10=10)	SAQ (3X5=15)	25 MARKS
1	Normal Periodontium		1	5
2	Etiology of periodontal diseases	1		10
3	Gingival / periodontal pathology		1	5
4	Periodontal disease and systemic health			0
5	Classification of periodontal disease		1	5

If the LAQ is from Diagnosis, prognosis & treatment plan, the matrix is as follows

S.No	SECTION B	LAQ (1X10=10)	SAQ (3X5=15)	35 MARKS
1	Treatment of gingival and periodontal diseases – Surgical, periodontal emergencies		1	5
2	Diagnosis, prognosis & treatment plan	1		10
3	Treatment of gingival and periodontal diseases – Non surgical		1	5
4	Oral Implantology			0
5	Supportive periodontal therapy		1	5

**SECTION C: VSAQs:**

**5x2= 10 marks**

Question number	Topics	M / D / N
9,10	Biologic basis of Periodontology	M
11,12,13	Clinical periodontics and Oral Implantology	M

**Blueprint for clinical examination:**

**Clinical Examination:** 90 marks

Case presentation with scaling: 40 marks

OSCE / OSPE: 50 marks

**Clinical Internal Assessment:** 10 marks

**Total = 100 marks**

# OSCE / OSPE SYLLABUS

## Table of Specifications

Department of Periodontology											
Competency Being assessed	D O M A I N S	Systems being tested									
		S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10
		Universal precautions	Diagnosis of periodontal diseases	Measurement of PPD / CAL	Instrumentation	ultrasonic & piezo instrumentation	Treatment plan	Radio graphs	Sutures/ periodontal dressings	Periodontal Medicine	Oral hygiene instructions
Interpretation of data	K	Knowledge of requirements to disinfect dental chair, hand pieces, and personal protection barriers	Identify abnormal from normal tissues based on clinical signs	Identification of landmarks to measure PPD / CAL	Identification of scalers and curettes	Identify various tips used and purpose for the same	-	Identify type of bone loss, PDL space widening, Periapical radiolucency if any, presence or absence of Lamina Dura	Identify the type of suture or periodontal dressings	For a given case scenario identify the underlying periodontal systemic link	Knowledge and sequence of oral hygiene instructions
Application	K & A	wear personal protection barriers in order and disinfect the chair side area	to be able to arrive at a diagnosis and formulate treatment plan	to apply findings to arrive at diagnosis	to demonstrate use of instrument	proper placement of ultrasonic tips against the tooth surface	chart out a comprehensive treatment plan	process the data identified and arrive at a radiographic diagnosis	to choose the appropriate suture material or periodontal dressing for a given condition	identify periodontal treatment modifications for such cases of periodontal systemic problems	choose appropriate OHI instruction in terms of brushing methods or interdental aid identification

Ability to carry out procedure	P M		-	angulations of probing	adaptation angulations of instrument and strokes used	oral prophylaxis of one quadrant	-	Methodical way of interpreting the radiograph	demonstrate type of sutures, manipulation of periodontal dressing		demonstrate specified brushing method
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#### RECOMMENDED BOOKS

1. Newman MG. Carranza's clinical periodontology. 11th ed. Elsevier; 2011
2. Cohen, E. Atlas of Cosmetic and Reconstructive Periodontal Surgery. 3rd ed. Hamilton: BC Decker Inc.; 2006
3. Sato N. Periodontal surgery – A clinical atlas, quintessence publishers, Germany; 2000.
4. Lindhe J, Niklaus L, Thorkild K. Clinical Periodontology and implant dentistry. 5th edition, Blackwell Publishing company: United Kingdom; 2008.



## (UNIVERSITY MODEL QUESTION PAPER)

IV BDS EXAMINATION  
PERIODONTICS

Time: 3 hours

Max. Marks: 70

## PART - I

## MODEL MULTIPLE CHOICE QUESTIONS:

(20 X 0.5 = 10)

1. The correct sequence of plaque formation is
  - (a) Initial attachment & adhesion, Formation of pellicle, secondary colonization and plaque maturation.
  - (b) Secondary colonization, plaque maturation, Formation of pellicle, initial attachment and adhesion
  - (c) Formation of pellicle, initial attachment and adhesion, secondary colonization and plaque maturation
  - (d) Formation of pellicle, initial attachment and adhesion, plaque maturation and secondary colonization
2. (A) In acute necrotizing ulcerative gingivitis, there is no pocket formation  
(R) There is no viable junctional epithelium
  - (a) Both A & R are true and R is the reason for A
  - (b) Both A & R are true but R is not the reason for A
  - (c) A is true and R is false
  - (d) A is false and R is true
3. A 24 year old male patient complains of spacing and mobility in maxillary anterior for past 1 month. On history no underlying systemic conditions were found. Radiographic finding reveals arc shaped bone loss in anterior teeth and molars. What is the probable diagnosis?
  - (a) Generalised chronic periodontitis
  - (b) Localised aggressive periodontitis
  - (c) Generalised aggressive periodontitis
  - (d) Localised chronic periodontitis
4. All of the following are features of initial lesion of gingival inflammation EXCEPT
  - (a) Vascular dilatation
  - (b) Plasma cell infiltration
  - (c) Lasts 2 to 4 days
  - (d) Increase in GCF
5. Pick the pair that is not rightly matched
  - (i) Periodontal ligament – Sharpey's fibers
  - (ii) Chronic periodontitis – P. gingivalis
  - (iii) Trauma from occlusion – Butressing bone formation
  - (iv) Gingival enlargement – Metronidazole

6. All the following are effects of smoking **EXCEPT**
- Increase in prevalence & severity of destruction
  - Increase in pocket depth
  - Increase in bone loss
  - Increase in inflammation & Bleeding on probing
7. Choose the FALSE statement from the following
- Curette is the instrument of choice for subgingival scaling and root planning
  - Both cutting edges are used in Gracey curettes
  - Universal curette is curved in one plane
  - Gracey #1,2,3 & 4 are used in anterior teeth
8. Choose the appropriate option: Which of the following are volatile sulphur compounds?
- Hydrogen sulphide
  - Cadaverin
  - Methyl mercaptan
  - Putresine
- If only 1,2 & 3 are correct
  - If only 1 & 3 are correct
  - If only two and 4 are correct
  - If only 4 is correct
9. Choose the correctly matched sequence from the following table

1) Gingival diseases modified by malnutrition	(i) Diabetes mellitus associated gingivitis
2) Gingival lesions of genetic origin	(ii) Pseudopocket
3) Mucogingival deformities around natural teeth	(iii) Hereditary gingival fibromatosis
4) Gingival diseases modified by endocrine system	(iv) Ascorbic acid deficiency gingivitis

- 1-iii, 2-ii, 3-iv, 4-i
  - 1-ii, 2-iv, 3-i, 4-iii
  - 1-iv, 2-iii, 3-ii, 4-i
  - 1-i, 2-iv, 3-ii, 4-iv
10. The drug of choice for host modulation is
- Doxycycline 100 mg TD
  - Tetracycline 100 mg BD
  - Doxycycline 20 mg BD
  - Tetracycline 20 MG TD

11. Choose the correctly matched sequence from the following table

(1) Risk factor	(i) Bleeding on probing
(2) Risk determinant	(ii) Osteoporosis
(3) Risk indicator	(iii) Age
(4) Risk marker	(iv) Diabetes
	(v) Malnutrition

- a) 1-iv, 2-v, 3-i, 4-ii
  - b) 1-v, 2-i, 3-ii, 4-i
  - c) 1-iv, 2-iii, 3-ii, 4-i
  - d) 1-iv, 2-ii, 3-iii, 4-v
12. The appropriate type of brushing technique for a patient who has undergone periodontal surgery is
- a) Charter's method
  - b) Stillman's method
  - c) Bass method
  - d) Fones method
13. Antimicrobial therapy comes under which phase of treatment plan?
- a) Phase I
  - b) Phase II
  - c) Phase III
  - d) Phase IV
14. The dosage of systemic tetracycline in treatment of aggressive periodontitis.
- a) 500mg, 4 times daily for atleast 7 days
  - b) 250mg, 4 times daily for atleast 7 days
  - c) 500mg, 3 times daily for atleast 5 days
  - d) 250mg, 3 times daily for atleast 5 days
15. Which of the following factor/s may affect probing depth measurements?
- i) Probing force
  - ii) Probe type
  - iii) Angulation of probe
  - iv) Periodontal health
- (a) i, ii and iii are correct
  - (b) i and iii are correct
  - (c) ii and iv are correct
  - (d) All four are correct
16. Tunnelling procedure in periodontal surgery is also known as
- a) Coronoplasty
  - b) Odontoplasty
  - c) Osteoplasty
  - d) Furcationplasty
17. (A) Internal bevel incision is basic to most periodontal flap procedures BECAUSE  
(B) It removes the pocket lining
- (a) Both A & B are true and B is the reason for A
  - (b) Both A & B are true but are not causally related
  - (c) A is true and B is false
  - (d) A is false and B is true
18. Conventional flaps include all **EXCEPT**
- (a) Modified Widman
  - (b) Undisplaced
  - (c) Papilla preservation
  - (d) Apically displaced

19. The design of the flap is dictated by
- i) Surgical judgement of the operator
  - ii) Depth of the pocket
  - iii) Esthetic concerns of the area of surgery
  - iv) Blood supply to the flap
- (a) i - False, ii - True, iii - True, iv - False
  - (b) i - True, ii - False, iii - True, iv - True
  - (c) i - True, ii - True, iii - False, iv - True
  - (d) i - False, ii - True, iii - False, iv - True
20. Resective osseous surgery is indicated in all of the following situations **EXCEPT**
- (a) Reverse architecture
  - (b) Buttressing bone formation
  - (c) Extensive bone loss
  - (d) Shallow craters

**PART - II**  
**SECTION - A**

**LONG ANSWER QUESTION:** **1x10 = 10**

1. Define Gingiva (2). Write the parts of gingiva (2). Add a note on gingival fibers (6).

**SHORT ANSWER QUESTIONS:** **3x5 = 15**

2. Enlist (1) and explain any four predisposing factors (4) for dental calculus formation.
3. Define periodontal pocket (1). Add a note on pathogenesis of periodontal pocket (4).
4. What is the effect of diabetes mellitus on periodontal pathogenesis.

**SECTION - B**

**LONG ANSWER QUESTION:** **1x10 = 10**

5. What is furcation involvement (2). Classify furcation involvement according to Glickman under the following headings: Type of pocket, Nabers probe penetration, bone loss & prognosis (8).

**SHORT ANSWER QUESTIONS:** **3x5 = 15**

6. Explain the phases of periodontal therapy in treatment plan (4). Write the correct sequence of periodontal therapy (1).
7. What is host modulatory therapy (2). Give an example for Sub antimicrobial dose doxycycline and mention the correct dosage of the same (1+2)
8. Write two rationale for supportive periodontal therapy (2). Write the periodontal maintenance care at each recall visit (3)

**SECTION - C**

**VERY SHORT ANSWER QUESTIONS:** **5x2 = 10**

9. What are fenestration & dehiscence (1+1)
10. Define dental plaque.
11. Write two differences between universal and area specific curettes
12. Define osseointegration
13. What is DNA probe?

## PEDIATRIC AND PREVENTIVE DENTISTRY

Number of hours prescribed by DCI			
Theory hours	Clinical hours		Total
IV year BDS 65	III year BDS 70	IV year BDS 130	265
Total: 65	Total: 200		

### GOAL:

1. Primary concern is to promote the oral health of infants, children, adolescents and children with special health care needs
2. Achieve a high and ethical standard of practice, promotion of education, and research in Pediatric and Preventive Dentistry
3. Emphasise in developing a positive attitude towards Dentistry

### OBJECTIVES:

**KNOWLEDGE:** During the training in Pediatric and Preventive Dentistry and Preventive Dentistry the students should acquire knowledge:

1. To consider child patient as a — WHOLE —, every effort is made to improve the dental health as it is always in accordance with the general health of the patient
2. To have a thorough knowledge in early diagnosis and prompt treatment,
3. To have adequate knowledge to observe and control the necessary developing dentition of the child by himself intervening or referring to a specialist

**SKILL:** After training in Pediatric and Preventive Dentistry and Preventive Dentistry the student should be able to demonstrate skills necessary for practice:

1. Obtain proper clinical history, methodological examination of the child patient, perform essential diagnostic procedures and interpret them, arrive at a reasonable diagnosis and deliver effective treatment, keeping in mind the expectations and the right of the patient to receive the best possible treatment.
2. Be competent to treat dental diseases occurring in children, prevent and manage complications if encountered while carrying out various dental procedures.
3. Manage to repair and restore the lost/tooth structure so as to maintain harmony between hard and soft tissues of the oral cavity.
4. Control pain and anxiety among the patients during dental procedures.
5. Manage the child with special health care needs effectively and efficiently.
6. Promote oral health and prevent oral diseases where possible.

**ATTITUDE: the student should develop during the training period the following attitudes:**

1. Develop an attitude to adopt ethical principles in all aspects of pedodontic practice
2. Professional honesty and integrity to be inculcated
3. Deliver treatment care irrespective of social status, caste creed or religion
4. Willingness to share knowledge and clinical experience with professional colleagues
5. Respect child patient's rights and privileges, including child patient's right to information and right to seek second opinion.
6. Develop an attitude to seek opinion from allied medical and dental specialties as and when required

### COMPETENCIES

At the completion of the undergraduate training programme the graduates shall be competent in the following

1. Able to instill a positive attitude and behaviour in children towards oral health and understand the principles of Pediatric and Preventive Dentistry right from birth to adolescence.
2. Able to guide and counsel the parents in regards to various treatment modalities including different facets of Preventive Dentistry right from birth to adolescence
3. Able to treat dental diseases occurring in children through adolescence.
4. Able to manage children with special health care needs effectively and efficiently, tailored to the needs of individual requirement and conditions

### SYLLBUS CONTENT-IV BDS

**Theory: no of hours=65**

IV BDS				
Sl no	TOPIC	System weightage	Number of hours	Must know (M)/ Desirable to know (D) /Nice to know(N)
1	Introduction to Pediatric and Preventive Dentistry & Preventive Dentistry	1 %	1	M
2	Development of Occlusion from Birth Through Adolescence	4 %	2	M
3	Dental Anatomy	4.4%	2	M
4	Child Psychology	6%	5	M
5	Behaviour Management	6%	5	M
6	Pediatric Operative Dentistry	6%	3	M
7	Case History Recording	5%	2	M

**Pediatric and Preventive Dentistry**

<b>Sl no</b>	<b>TOPIC</b>	<b>System weightage</b>	<b>Number of hours</b>	<b>Must know (M)/ Desirable to know (D) /Nice to know(N)</b>
8	Growth & Development	1%	1	M
9	Dental Radiology Related to Pediatric and Preventive Dentistry	3%	1	M
10	Oral Surgical Procedures in Children	3%	2	D
11	Dental Caries	8%	5	M
12	Gingival & Periodontal Diseases in Children	3%	2	M
13	Pediatric Endodontics	6.5%	4	M
14	Traumatic Injuries in Children	6.5%	4	M
15	Preventive & Interceptive Orthodontics	5%	4	M
16	Oral Habits in Children	5%	3	M
17	Dental Care of Children with Special Needs	5%	5	M
18	Congenital Abnormalities in Children	2%	1	D
19	Dental Emergencies in Children & Their Management	2%	1	D
20	Dental Materials Used in Pediatric Dentistry	2%	1	D
21	Preventive Dentistry	5%	3	M
22	Dental Health Education & School Dental Health Programmes	2%	1	N
23	Fluorides	5%	4	M
24	Recent Advancements in Pediatric Dentistry	2%	1	N
25	Setting up of Pedodontic Clinic & Ethics	2%	1	D
26	Child Abuse & Neglect	3%	1	D



**PRECLINICAL WORK - II<sup>ND</sup> BDS**

- ✓ ONLY cavity preparations will be done on typhodont models.
- ✓ To be integrated with II year BDS Preclinical work, Department of Conservative Dentistry.

Sl no	II BDS Pre Clinical hours	Observe / assist / perform
1.	01 each - Class I (55,85), Class II (64,74), Class III (61), Class V (63) Cavity preparation and restoration in Primary Typhodont teeth / extracted teeth	Perform
2.	Tooth identification, Case History discussion, demonstration of Fluoride application, and Pit and Fissure sealants - 01 Case, CRA – 01 case	Observe

**Chair side teaching syllabus: II BDS**

Sl no	Topics	Hours
1	Sterilisation and infection control, waste disposal	20 mins
2	Morphological differences between primary and permanent teeth	20 mins
3	Principles of cavity preparation and modifications in primary teeth	20 mins
4	Methods of isolation and use of rubber dam, Matrices for primary teeth	20 mins
5	Base, sub-base, Varnish, Amalgam, GIC, Composite restorative materials	20 mins
6	Fluoride application, Pit and fissure sealants, ART, PRR	20 mins

**III BDS: CLINICAL HOURS**

Sl no	III BDS Clinical hours	P/O/A
1	Teeth identification exercises – 10	Perform
2	05 - Detailed Case History Recording with recording of CRA	Perform
3	10 case - Case History Recording, with Oral prophylaxis after using disclosing solution & oral hygiene instructions	Perform
4	5 - cases of Case History Recording, Fluoride application	Perform
5	20 cases - cavity preparation and restorations in primary and permanent teeth, Pit and Fissure Sealants, PRR	Perform
6	Pulp therapy	Observe
7	Construction of fixed Space maintainers /stainless steel crowns	Observe

8	Behaviour management/ shaping of uncooperative/ special child	Observe
9.	01 - Written Assignment	Perform

**III BDS: CHAIR SIDE TEACHING SYLLABUS**

Sl no	Topics	Hours
1	Principles of cavity preparation and modifications in primary teeth	20 mins
2	Methods of isolation and use of rubber dam in clinic	20 mins
3	Anticipatory guidance in Pediatric oral health, infant oral health care, Plaque control measures, CRA recording	20 mins
4	Behavioural sciences and its clinical application	20 mins
5	Pit and fissure sealants, ART, PRR	20 mins
6	Preventive and Interceptive Dentistry, Habits, space management	20 mins
7	Exodontia	20 mins

**IV BDS – CLINICAL HOURS**

SL no	Fourth BDS Clinical hours	Observe / assist / perform
1	05 - Detailed Case History Recording with CRA forms	Perform
2	10 case - Case History Recording, with Oral prophylaxis & oral hygiene instructions	Perform
3	05- cases of Case History Recording, FI application	Perform
4	25 cases - cavity preparation and restorations in primary and permanent teeth, Pit and Fissure Sealants, PRR	Perform
5	15 cases- Extractions with post extraction instructions	Perform
6	Pulp therapy (Pulpotomy, Pulpectomy Apexification, Apexogenesis)	Observe
8	Construction of fixed Space maintainers / stainless steel crowns	Observe/ Assist
9	Behaviour management/ shaping of uncooperative/ special child	Observe/ Assist

**IV year BDS Chair-side teaching syllabus:**

Sl no	Topics	Hours
1	Caries risk assessment, diet chart recording	
2	Preventive and interceptive Orthodontics	20 mins

3	Space management & Oral Habits	20 mins
4	Clinical Management of Traumatic injuries to anterior teeth	20 mins
5	Clinical significance/ future advances of Radiographs in Pediatric and Preventive Dentistry	20 mins
6	Pulp therapy in Pediatric Dentistry	20 mins
7	Dental management of children with special health care needs	20 mins
8	Current concepts in Pediatric dentistry, MID, ART, PRR	20 mins

**Integrated teaching syllabus (to include topics that are common with different specialities)**

Sl.No	Topics	Speciality Integrating	YEAR
1	Morphological differences between primary and permanent teeth. Eruption shedding	Dental Anatomy	1st year
2	Cariology Traumatic injuries to anterior teeth Pediatric Endodontics	Conservative & Endodontics Oral Medicine	3 <sup>rd</sup> and Final Year
3	Anatomic differences of gingiva, Gingival and periodontal diseases in children and adolescents	Periodontics	3 <sup>rd</sup> Year
4	Growth and Development Myofunctional appliances Cleft lip and palate	Orthodontics Prosthodontics	Final Year
5	Local anaesthesia Exodontia	Oral Surgery	3 <sup>rd</sup> Year
6	Fluorides Preventive Paedodontics	Public Health Dentistry	Final Year

**EARLY CLINICAL EXPOSURE: DISCUSSION**

Sl.No	I BDS	Speciality Integrating
1	Drawing Exercise	2 hours
	<b>II BDS</b>	
1	Case history, diagnosis and treatment plan, tooth identification OBSERVE - clinical procedures like restoration, pit and fissure sealants, extractions	2 hours

### Scheme of Examination

#### 1. Theory: 70 Marks

Part I : 20 MCQs (20 X 0.5 = 10 Marks)

Part II :

Section A: 1 LAQ (1 X 10 = 10 Marks)

3 SAQs (3 X 5 = 15 Marks)

Section B: 1 LAQ (1 X 10 = 10 Marks)

3 SAQs (3 X 5 = 15 Marks)

Section C: 5 VSAQs (5 X 2 = 10 Marks)

**Theory Internal assessment:** 10 marks

**Viva voce:** 20 marks

**Total = 100 Marks**

#### 2. Practical examination: 90 Marks

**Practical Internal Assessment – 10 Marks**

**Total – 100 Marks**

### **BLUE PRINT OF THEORY QUESTION PAPER:**

The questions can be distributed as follows:

- 70 % from the Must know areas
- 20 % from Desirable to know areas
- 10 % from Nice to know areas
- MCQ's to be taken ONLY from the MUST KNOW AREA

### **SECTION - A**

If LAQ from Preventive Dentistry, the matrix is as follows					
Sl.No	Topic	LAQ (1x 10)	SAQ (3X5)	VSAQ (5X2)	MCQ (10X0.5)
1	Fundamentals of Paedodontics, case history, diagnosis & treatment planning, Dental anatomy and histology, radiology			3 VSAQs	-
2	Growth & development Development of dentition & occlusion		1		2
3	Preventive dentistry, dental health education and school dental health program	1			2
4	Child psychology & behaviour management		1		2
5	Dental care of Children with special health care needs & congenital abnormalities in children		1		2
6	Dental materials used in Pediatric dentistry & ethics				2

If LAQ from Child Psychology & Behaviour Management, the matrix is as follows					
Sl.No	Topic	LAQ (1x 10)	SAQ (3X5)	VSAQ (5X2)	MCQ (10X0.5)
1	Fundamentals of Paedodontics, case history, diagnosis & treatment planning, Dental anatomy and histology, radiology			3 VSAQs	
2	Growth & development Development of dentition & occlusion		1		2
3	Preventive dentistry, dental health education, school dental health programme		1		2
4	Child psychology & behaviour management	1			2
5	Dental care of Children with special health care needs & congenital abnormalities in children		1		2
6	Dental materials used in pediatric dentistry & ethics				2

If LAQ from dental care of children with special health care needs, the matrix is as follows					
Sl.No	Topic	LAQ (1x 10)	SAQ (3X5)	VSAQ (5X2)	MCQ (10X0.5)
1	Fundamentals of Paedodontics, case history, diagnosis & treatment planning, Dental anatomy & histology, radiology			3 VSAQs	
2	Growth & development Development of dentition & occlusion		1		2
3	Preventive dentistry, dental health education, school dental health programme		1		2
4	Child psychology & behaviour management		1		2
5	Dental care of Children with special health care needs, congenital abnormalities in children	1			2
6	Dental materials used in pediatric dentistry & ethics				2

## SECTION - B

If LAQ from Cariology & Pediatric Operative Dentistry, the matrix is as follows					
Sl.No	Topic	LAQ (1x 10)	SAQ (3X5)	VSAQ (5X2)	MCQ (10X0.5)
1	Cariology & Pediatric Operative dentistry & recent advances in Pediatric dentistry	1		2 VSAQs	2
2	Gingival & periodontal diseases in children		1		2
3	Preventive & interceptive orthodontics & oral habits		1		2
4	Traumatic injuries in children & pediatric Endodontics		1		2
5	Pediatric Oral Surgery, Local Anaesthesia & dental emergencies Commonly used drugs in Pediatric Dentistry, Child abuse & neglect, Setting up of Paedodontic clinic				2

If LAQ from Preventive & interceptive orthodontics & oral habits, the matrix is as follows					
Sl.No	Topic	LAQ (1x 10)	SAQ (3X5)	VSAQ (5X2)	MCQ (10X0.5)
1	Cariology & Pediatric Operative dentistry & recent advances		1	2 VSAQs	2
2	Gingival & periodontal diseases		1		2
3	Preventive & interceptive orthodontics & oral habits	1			2
4	Traumatic injuries in children & pediatric Endodontics		1		2
5	Pediatric Oral Surgery, Local Anaesthesia & dental emergencies, Analgesics & antimicrobials in Pediatric Dentistry Child abuse & neglect, setting up of Paedodontic clinic				2

If LAQ from traumatic injuries in children & Pediatric Endodontics, the matrix is as follows					
Sl.No	Topic	LAQ (1x 10)	SAQ (3X5)	VSAQ (5X2)	MCQ (10X0.5)
1	Cariology & Pediatric Operative dentistry & recent advances		1	2 VSAQs	2
2	Gingival & periodontal diseases		1		2
3	Preventive & interceptive orthodontics & oral habits		1		2
4	Traumatic injuries in children & pediatric Endodontics	1			2
5	Pediatric Oral Surgery, Local Anaesthesia & dental emergencies, Analgesics & antimicrobials in Pediatric Dentistry, Child abuse & neglect, Setting up of Paedodontic clinic				2

**Blueprint of clinical Examination:**

1. Case history recording and clinical procedure (including record book) = 40 marks
2. OSCE/OSPE = 50 Marks (5 marks for each station) (total 10 stations carrying 5 marks for each station)

**Clinical Internal Assessment: 10 marks****Total = 100 marks**

<b>STATION 1</b> (Diagnosis and Radiology)	<b>STATION 2</b> (Behavior Management and Child Psychology)	<b>STATION 3</b> (Cariology)	<b>STATION 4</b> (Preventive and Interceptive Orthodontics)
<b>STATION 5</b> (Traumatology)	<b>STATION 6</b> (Pediatric Endodontics)	<b>STATION 7</b> (Child with special Health Care needs)	<b>STATION 8</b> (Minor Oral Surgical Procedures)
<b>STATION 9</b> (Pediatric Operative Dentistry)	<b>REST</b>	<b>STATION 10</b> (Health Education, observers station)	

**Recommended and Reference books**

1. Dentistry for the Child and Adolescence – Mc. Donald.
2. Clinical Paedodontics – Finn.
3. Kennedy's Pediatric Operative Dentistry – Kennedy & Curzon.
4. Text book of Paedodontics – Shobha Tandon
5. Text book of Pediatric Dentistry – Nikhil Marwah
6. Behaviour Management – Wright
7. Pediatric Dentistry – Principles & Practise M.S.Muthu
8. Traumatic Injuries – Andreason.
9. Understanding caries – Gordon Nikiforuk
10. Total patient care – Stephen Wei
11. Pediatric Dentistry (Infancy through Adolescence) – Pinkham
12. Pediatric Dentistry – Mathewson.



(UNIVERSITY MODEL QUESTION PAPER)

IV BDS EXAMINATION

PEDIATRIC AND PREVENTIVE DENTISTRY AND PREVENTIVE DENTISTRY

Time: 3 hours

Max. Marks: 70

PART - I

MODEL MULTIPLE CHOICE QUESTIONS:

(20 X 0.5 = 10)

1. The obturating material of choice for primary teeth following complete pulpectomy is
  - a) Zn phosphate cement and formocresol combination paste
  - b) Quick setting hydroxide cement
  - c) Zinc oxide and eugenol cement
  - d) Gutta-percha
2. When primary molars are prepared for stainless steel crowns should the depth for reduction of the proximal surface be similar to the depth of the buccal and lingual surfaces
  - a) Yes; reduction of all wall is similar for best retention
  - b) No, proximal reduction is greater to allow the crown to pass the contact area
  - c) No, the buccal surfaces has the greatest reduction to remove the cervical bulge
  - d) Yes, all undercuts are uniformly removed so that the steel crown can be seated
3. 8 years old child who has sustained a fracture of maxillary permanent central incisor in which 2mm of the pulp is exposed; presents for treatment three hours after injury. Which of the following should be considered
  - a) Remove the surface 1-2 mm of pulp tissue and place calcium hydroxide
  - b) Place calcium hydroxide directly on the exposed pulp
  - c) Pulpectomy and immediate root filling
  - d) Pulpectomy and apexification
4. Which primary teeth are LEAST affected with the nursing bottle syndrome
  - a) Maxillary molars
  - b) Maxillary and mandibular canines
  - c) Mandibular incisors
  - d) Mandibular molars
5. Which of the following anomalies occurs during the initiation and proliferation stages of tooth development
  - a) Amelogenesis imperfecta
  - b) Dentinogenesis imperfecta
  - c) Enamel hypoplasia
  - d) Oligodontia
6. The extraction of maxillary deciduous molar in 5 years old child; you should use
  - a) Mostly towards the apex pressure and some movement
  - b) Rotation
  - c) Distal pressure and movement
  - d) Bucco -lingual movement

7. Loss of tooth in mixed dentition affects the
  - a) Same quadrant
  - b) The relevant jaw
  - c) The whole mouth
  - d) The relevant quadrant
8. A child has sustained a traumatic exposure of primary central incisor, he presents to you for treatment two days after the injury. Which of the following should be considered
  - a) Pulpotomy and  $\text{Ca}(\text{OH})_2$
  - b) Pulpotomy and formocresol
  - c) Direct pulp capping
  - d) Pulpectomy (RCT)
9. 8 years old child presents with all permanent incisors erupted, but yet only three permanent first molars are erupted. Oral examination reveals a large gingival bulge in the unerupted permanent area. A panoramic radiograph shows the alveolar emergence of the un-erupted permanent first molar crown and three fourth tooth developments, there are no other radiographic abnormalities. The most appropriate diagnosis and treatment plan in such situation would be
  - a) Dentigerous cyst; surgical enucleation.
  - b) Idiopathic failure of eruption, surgical soft tissues exposure
  - c) Ankylosis of the molar, removal of the first molar to allow the second one to erupt into its place.
  - d) Ankylosis of the molar, surgical soft tissues exposure and luxation of the molar
10. An 8 -years old child presents with symptoms of widespread gingivitis with bleeding and general malaise for several weeks. How would you manage this patient
  - a) Locally debride, give oral hygiene instruction and prescribe  $\text{H}_2\text{O}_2$  mouth wash.
  - b) Give a prophylaxis with ultra sonic scaling
  - c) Refer for haematological screening
  - d) Advise for bed rest with supportive and palliative treatment
11. What is the effect of office dental prophylaxis of regular six month intervals on children's oral health
  - a) Reduce caries incidence by approximately 30%
  - b) Provide a long term improvement in oral hygiene
  - c) Provide a short term improvement in oral hygiene
  - d) Prevent gingivitis
12. Transillumination is used to
  - a) To find intrinsic tooth coloration
  - b) To detect caries
  - c) Pulp-stones
  - d) Hemorrhagic pulp
13. The difference between deciduous and permanent teeth are
  - a) Deciduous teeth have a higher pulp horns and larger pulp chambers
  - b) Deciduous teeth have flatter contact areas
  - c) Deciduous teeth have thinner enamel surface
  - d) All of the above

14. A 12 year old girl complains of sore mouth, she has painful cervical lymphadenitis and a temperature of 39°C, oral examination shows numerous yellow grey lesions. What is the MOST LIKELY diagnosis
  - a) Measles
  - b) Erythema multiforme
  - c) Herpetic gingivostomatitis
  - d) Stevens-Johnson syndrome
15. The causative micro organism for Herpetic gingivostomatitis
  - a) Herpes simplex bacteria
  - b) Herpes zoster virus
  - c) Herpes simplex virus
  - d) Borrelia vincentii
16. How many pulp horns are presented in a typical mandibular deciduous second molar is
  - a) 2
  - b) 3
  - c) 4
  - d) 5
17. The best space maintainer is
  - a) Lingual holding arch
  - b) Pulpotomised primary tooth
  - c) Band and loop maintainer
  - d) none of the above
18. Child with less than normal number of teeth, mandibular lateral incisor is larger than usual; on x rays it shows with two roots and two roots canals; your diagnosis is
  - a) Gemination
  - b) Fusion
  - c) Concrescence
  - d) Taurodontism
19. Which of the following organisms are pathognomonic of acute necrotic ulcerative gingivitis
  - a) Spirochaetes and fusobacterium SP
  - b) Spirochaetes and eikenella corrodes
  - c) Actinobacillus actinomycetes comitans oral capnocytophaga
  - d) Porphyromonas gingivalis and prevotella intermedia
20. Which of the following is NOT characteristic of Down's syndrome
  - a) Macroglossia
  - b) Macrodonia
  - c) An increased susceptibility to periodontal disease
  - d) Hypodontia

**PART - 2**

**SECTION - A**

**LONG ANSWER QUESTIONS:**

**(1X10 =10)**

1. Classify bleeding disorders in children. (4) Describe the dental consideration in the
  - a) Management of hemophiliac child. (3)
  - b) Management of child with cyanotic congenital heart disease. (3)

**SHORT ANSWER QUESTIONS:**

**(3X5 =15)**

2. Describe the Aversive conditioning technique.
3. Tabulate the self correcting anomalies that present during the different stages of development of occlusion and mechanisms by which they get corrected
4. Classify fissures and fissure sealants. List the indications and contraindications of pit and fissure sealants.

**SECTION - B**

**LONG ANSWER QUESTIONS:**

**(1X10 = 10)**

5. Define Early Childhood Caries. (2)
  - j) What is its etiology? (3)
  - k) Describe the types, its clinical features and management. (5)

**SHORT ANSWER QUESTIONS:**

**(3 X 5 = 15)**

6. Describe the etiology, clinical features and management of primary herpetic gingivostomatitis.
7. Write the indications of Nance palatal arch appliance and its design.
8. List the indications and contraindications and describe the Formocresol Pulpotomy technique

**SECTION - C**

**VERY SHORT QUESTIONS**

**(5X2=10)**

9. List the tests for mouth breathing.
10. List any four storage media for avulsed teeth.
11. List three clinical features of Papillon Le fevre Syndrome.
12. What is the point of insertion of the needle for inferior alveolar technique in a child below five years? What is the most common complication of Inferior alveolar nerve block in children?
13. List the contraindications for Distal Shoe Space Maintainer.

**CONSERVATIVE DENTISTRY AND ENDODONTICS**

Number of hours prescribed by DCI				
Theory hours		Clinical hours		Total
III year BDS 30	IV year BDS 80	III year BDS 70	IV year BDS 300	480
Total: 110		Total: 370		

**GOAL**

To prevent and control carious and non-carious diseases and lesions

**OBJECTIVES****KNOWLEDGE**

The graduate should acquire the following knowledge during the period of training.

- To diagnose carious and non-carious lesions and treat with simple restorative work
- To gain knowledge about aesthetic restorative material and to translate the same to patient's needs.
- To gain the knowledge about endodontic treatment on the basis of scientific foundation.
- To carry out simple endodontic treatment.
- To diagnose and manage traumatic injuries and to provide emergency endodontic treatment.

**SKILLS**

He should attain following skills necessary for practice of dentistry

- To use medium and high speed hand pieces to carry out restorative work.
- Possess the skills to use and familiarize endodontic instruments and materials needed for carrying out simple endodontic treatment.
- To achieve the skills to translate patients esthetic needs along with function.

**ATTITUDES**

- Maintain a high standard of professional ethics and conduct and apply these in all aspects of professional life.
- Willingness to participate in CDE program to update the knowledge and professional skill from time to time.
- To help and participate in the implementation of the national oral health policy.
- He should be able to motivate the patient for proper dental treatment at the same

time proper maintenance of oral hygiene should be emphasize which will help to maintain the restorative work and prevent future damage.

### COMPETENCIES

At the completion of the undergraduate training program the graduates shall be competent in the following:

1. Competent to diagnose all carious lesions
2. Competent to perform class I & II cavities and their restoration with amalgam
3. Restore class V & III cavities with glass ionomer cement
4. Able to diagnose and appropriately treat pulpally involved teeth
5. Able to perform RCT for anterior teeth
6. Competent to carry out small composite restoration
7. Understand the principles of aesthetic dental procedures

### SYLLABUS III YEAR

Theory - 30 hours

Sl no	TOPIC	System weightage	Number of hours	Must know (M)/ Desirable to know (D) / Nice to know (N)
<b>Conservative dentistry</b>				
1	Disinfection and sterilisation of operative armamentarium	3%	1	M
2	Control of the field of operation	3%	1	M
3	Instrument set-up	6.5%	2	M
4	Anxiety and pain management	3%	1	N
5	Occlusion considerations in Operative procedures	3%	1	N
6	Examination, diagnosis and treatment plan	3%	1	M
7	Clinical Cariology ➤ Clinical presentation ➤ Latest classification ➤ Disease diagnosis—Caries risk assessment and Lesion detection	10%	3	M
8	Non-operative treatment of dental caries ➤ At the microbial level ➤ At the dietary level ➤ At the host level ➤ Pit and fissure sealant procedure and sealant restoration procedure	10%	3	M

9	Operative treatment of dental caries ➤ Caries removal ➤ Choice of restorative materials ➤ Designing the cavity for various restorations ➤ Silver amalgam restorations - simple, compound and complex ➤ clinical approach ➤ Bonded amalgam ➤ complex amalgam ➤ failures in amalgam ➤ Mercury hygiene	13%	4	M
10	Minimal Invasive Dentistry	6.5%	2	M
<b>Endodontics</b>				
1	Rationale and principles in endodontic therapy ➤ Zones of inflammation ➤ Kronfeld's mountain pass concept	6.5%	2	M
2	Pulpo-peri apical lesions ➤ Classification ➤ Clinical features ➤ Definitive management	6.5%	2	M
3	Diagnosis and treatment plan in endodontics ➤ Diagnosis ➤ Diagnostic aids—Vitality tests, Radiographs ➤ Treatment plan	6.5%	2	M
4	Endodontic armamentarium ➤ Classification ➤ Standardization ➤ Sterilization	6.5%	2	M
5	Internal anatomy of pulp space ➤ Apical tip anatomy ➤ Dimensions of crown and roots ➤ Canal configuration types	3%	1	D
6	Overview of endodontic treatment	6.5%	2	D

**SYLLABUS IV YEAR**

Theory - 80 hours

Sl no	TOPIC	System weightage	Number of hours	Must know (M)/ Desirable to know (D) / Nice to know (N)
<b>Conservative</b>				
1	Disinfection and sterilisation of operative armamentarium	1.25%	1	M
2	Examination, diagnosis and treatment plan	2.5%	2	M
3	Clinical Cariology ➤ Clinical presentation ➤ Latest classification ➤ Disease diagnosis—Caries risk assessment and Lesion detection	3.75%	3	M
4	Non-operative treatment of dental caries ➤ At the microbial level ➤ At the dietary level ➤ At the host level ➤ Pit and fissure sealant procedure and sealant restoration procedure	3.75%	3	M
5	Operative treatment of dental caries ➤ Caries removal ➤ Choice of restorative materials ➤ Designing the cavity for various restorations  Silver amalgam restorations—simple, compound and complex ➤ clinical approach ➤ Bonded amalgam ➤ complex amalgam ➤ failures in amalgam ➤ Mercury hygiene  Light cure composite restorations ➤ clinical approach ➤ material advancements ➤ anterior restorations ➤ posterior restoration ➤ direct vs. indirect resin restoration ➤ Fibre reinforced resin restorations.	15%	12	M



	Glass ionomer restorations ➤ Clinical approach ➤ modified GIC  Cast restorations ➤ clinical approach ➤ CAD-CAM  Gold foil restorations ➤ clinical approach			D   D
6	Deep Caries management ➤ Direct and indirect pulp capping - clinical approach, latest advancements in materials ➤ Temporization and interim restorations ➤ Pulpotomy - clinical approach	3.75%	3	M
7	Minimal Invasive Dentistry	1.25%	1	M
8	Non-carious disfigurement ➤ Clinical presentation ➤ Dentin hypersensitivity and management	5%	4	M
9	Aesthetic dentistry ➤ Veneers ➤ Bleaching	5%	4	D
<b>Endodontics</b>				
10	Rationale and principles in endodontic therapy ➤ Zones of inflammation ➤ Kronfeld's mountain pass concept	2.5%	2	M
11	Pulpo-peri apical lesions ➤ Classification ➤ Clinical features ➤ Definitive management	3.75%	3	M
12	Diagnosis and treatment plan in endodontics ➤ Diagnosis ➤ Diagnostic aids—Vitality tests, Radiographs ➤ Treatment plan	3.75%	3	M
13	Micro biology in endodontics	2.5%	2	D

# Conservative Dentistry and Endodontics

14	Endodontic armamentarium ➤ Classification ➤ Standardization ➤ Sterilization	2.5%	2	M
15	Pulpotomy and Apexification ➤ Definition ➤ Rationale ➤ Materials ➤ Clinical techniques	3.75%	3	M
16	Internal anatomy of pulp space ➤ Apical tip anatomy ➤ Dimensions of crown and roots ➤ Canal configuration types	2.5%	2	D
17	Access preparation ➤ Rationale ➤ Instruments ➤ Procedure	2.5%	2	M
18	Working length and width estimation ➤ Rationale ➤ Radiographic method ➤ Apex locators	2.5%	2	M
19	Clean and shape ➤ Rationale ➤ Irrigation and irrigants ➤ Canal shaping methods ➤ Conventional ➤ Rotary endodontics	3.75%	3	M
20	Intra canal medication	2.5%	2	M
21	Obturation ➤ Obturating and sealer materials ➤ Obturating techniques	3.75%	3	M
22	Post endodontic restoration ➤ Rationale ➤ Custom cast post and prefabricated posts	2.5%	2	D
23	Failures in root canal therapy	3.75%	3	D
24	Traumatic injuries and management	3.75%	3	M
25	Endodontic surgery ➤ Indications and contra indications ➤ Procedures	2.5%	2	D

26	Root resorption	3.75%	3	D
27	Endo-perio relationship	3.75%	3	D
28	Equipments and recent advances in materials in endodontics ➤ Laser ➤ Microscope assisted precision dentistry	2.5%	2	N

**Clinicals: 200 hours**

Sl no	Clinical cases	How many	Perform	Assist/ Observe
1.	Caries risk assessment	10	Perform	
2.	Silver amalgam restorations class I, II	30	Perform	
3.	Glass ionomer restorations class I, II, III, V	10	Perform	
4.	Composite resin restorations class IV, I, II, III, V	10	Perform	
5.	Pit and fissure sealant and sealant restoration	10	Perform	
6.	Pulp capping – direct and indirect	10	Perform	
7.	Anterior root canal treatment	3	Perform	
8.	Direct composite veneer			Assist / Observe
9.	Bleaching			Assist / Observe
10.	Periapical surgery			Assist / Observe
11.	Posterior RCT			Assist / Observe
12.	Post endodontic restoration			Assist / Observe
13.	Splinting			Assist / Observe
14.	Diastema closure			Assist / Observe
15.	Indirect resin inlays—DEMO			Assist / Observe
16.	P and NP inlays and onlays			Assist / Observe

**Integrated teaching syllabus**

Sl no	Clinical cases	Specialty integrating
1	Dental Caries, Pulp & Periapical Pathologies	Cons& Endo, Oral Pathology
2	Gingival overhang	Cons & Endo, Periodontics

**Conservative Dentistry and Endodontics**

3	Intrinsic and extrinsic discolouration	Cons& Endo, Periodontics
4	Tooth malformation	Cons& Endo, Ortho Oral Pathology
5	Local anaesthesia and pain control	Cons& Endo, Oral surgery
6	Post endodontic restorations	Prosthodontics
7	Diagnosis & treatment plan – pulpal and periapical pathology	Cons & endo, Oral pathology

**Chair - side teaching syllabus**

Sl.No	Topics	Hours
1	Rubber dam application	1
2	Vitality test	1
3	Case history discussion	Half Hr
4	Instrument set up	1
5	Root canal sealer manipulation	Half Hr
6	Matrix band and retainer application	1
7	Demonstration of pit and fissure sealant, fissurotomy and flowable composite application in patients	1
8	Step by step procedure of Anterior root canal therapy demonstration in natural tooth	3
9	Cariology Case history discussion	1
10	Patient communication skill	Half Hr
11	Pain management	Half Hr
12	Endodontic emergency management	1
13	Esthetic emergency management	1

**Early Clinical Exposure**

Integrated Teaching syllabus			
Sl. No	Topics	Number of hours	Must know/ Desirable to know/ Nice to know
1	Rubber dam isolation	10 Mins	M
2	Restoration – silver amalgam	1hr 30 min	M
3	Restoration – GIC	Half -Hour	M

4	Restoration – composite	1	M
5	Pit and fissure sealant	15 Mins	M
6	Preventive resin restoration	1	M
7	Root canal treatment- anterior	1	M
8	Pulp capping	30 min	M

**Scheme of Examination****1. Theory: 70 Marks**

Part I : 20 MCQs (20 X 0.5 = 10 Marks)

Part II :

Section A: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)Section B: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)

Section C: 5 VSAQs (5 X 2 = 10 Marks)

**Theory Internal assessment: 10 marks****Viva voce: 20 marks****Total = 100 Marks****2. Practical examination: 90 Marks****Practical Internal Assessment – 10 Marks****Total – 100 Marks****Blue print of the question paper**

PART I (MCQs): Conservative Dentistry and Endodontics ( 10 marks)

PART II:

Section A: Conservative Dentistry (25 marks)

Section B: Endodontics (25 marks)

Section C (VSAQs): Conservative Dentistry and Endodontics (10 marks)

**The questions can be distributed as follows:**

70 % from the Must know areas

20 % from Desirable to know areas

10 % from Nice to know areas

**The difficulty level will be distributed as**

60% Easy

30% averagely difficult

10% very difficult

Section A : Conservative Dentistry (If the LAQ is from Aesthetic Restorative procedures / Materials, the pattern is as follows)				
Sl.No	Topic	LAQ 1X10 = 10	SAQ 3X5 = 15	Total: 25
1	Dental Caries		1	5
2	Minimal Invasive Dentistry			
3	Aesthetic Restorative procedures/ Materials	1		10
4	Metallic Restorative procedures/ Materials		1	5
5	Non carious lesions/ Dentinal Hypersensitivity		1	5
6	Deep Caries Management			

(If the LAQ is from Metallic Restorative procedures / Materials, the pattern is as follows)				
Sl.No	Topic	LAQ 1X10 = 10	SAQ 3X5 = 15	Total: 25
1	Diagnosis, treatment plan	1	1	5
2	Infection control, moisture control and pain control			
3	Operative Armamentarium and Occlusal considerations in Restorative Dentistry			
4	Dental Caries		1	5
5	Minimal Invasive Dentistry			
6	Metallic Restorative procedures/ Materials	1		10
7	Non carious lesions/ Dentinal Hypersensitivity		1	5
8	Deep Caries Management			

(If the LAQ is from Non carious lesions/ Dentinal Hypersensitivity, the pattern is as follows)				
Sl.No	Topic	LAQ 1X10 = 10	SAQ 3X5 = 15	Total: 25
1	Dental Caries		1	5
2	Minimal Invasive Dentistry			
3	Aesthetic Restorative procedures/ Materials		1	5
4	Metallic Restorative procedures/ Materials			
5	Non carious lesions/ Dentinal Hypersensitivity	1		10
6	Deep Caries Management		1	5

(If the LAQ is from Dental Caries and Minimal Invasive Dentistry, the pattern is as follows)				
Sl.No	Topic	LAQ 1X10 = 10	SAQ 3X5 = 15	Total: 25
1	Dental Caries	1		10
2	Minimal Invasive Dentistry			
3	Aesthetic Restorative procedures / Materials		1	5
4	Metallic Restorative procedures / Materials		1	5
5	Non carious lesions/ Dentinal Hypersensitivity		1	5

Section B: Endodontics (If the LAQ is from Diagnosis and treatment plan, the pattern is as follows)				
Sl.No	Topic	LAQ 1X10 = 10	SAQ 3X5 = 15	Total: 25
1	Basics in Endodontics 1. Pulpo periapical pathoses 2. Pulpal anatomy 3. Microbiology of root canal 4. Endodontic Instruments		1	5
2	Diagnosis and treatment plan in Endodontics	1		10
3	Root canal Therapy 1. Rationale 2. Access 3. Clean and shape – materials and procedure 4. Intra canal medicaments 5. Obturation – materials and procedure 6. Failure in RCT		1	5
4	Special topics in endodontics 1. Post endodontic restoration 2. Surgical Endodontics 3. Traumatic Injuries 4. Retreatment 5. Endo Perio lesions 6. Root resorption		1	5

(If the LAQ is from Root canal therapy, the pattern is as follows)				
Sl.No	Topic	LAQ 1X10 = 10	SAQ 3X5 = 15	Total: 25
1	Basics in Endodontics 1. Pulpo periapical pathosis 2. Pulpal anatomy 3. Microbiology of root canal 4. Endodontic Instruments		1	5

**Conservative Dentistry and Endodontics**

2	Diagnosis and treatment plan in Endodontics		1	5
3	Root canal Therapy 1. Rationale 2. Access 3. Clean and shape – materials and procedure 4. Intra canal medicaments 5. Obturation – materials and procedure 6. Failure in RCT	1		10
4	Special topics in endodontics 1. Post endodontic restoration 2. Surgical Endodontics 3. Traumatic Injuries 4. Retreatment 5. Endo Perio lesions 6. Root resorption		1	5

(If the LAQ is from special topics, the pattern is as follows)				
Sl.No	Topic	LAQ 1X10 = 10	SAQ 3X5 = 15	Total: 25
1	Basics in Endodontics 1. Pulpo periapical pathoses 2. Pulpal anatomy 3. Microbiology of root canal 4. Endodontic Instruments		1	5
2	Diagnosis and treatment plan in Endodontics		1	5
3	Root canal Therapy 1. Rationale 2. Access 3. Clean and shape – materials and procedure 4. Intra canal medicaments 5. Obturation – materials and procedure 6. Failure in RCT		1	5
4	Special topics in endodontics 1. Post endodontic restoration 2. Surgical Endodontics 3. Traumatic Injuries 4. Retreatment 5. Endo Perio lesions 6. Root resorption	1		10



**PART I & SECTION - C**

Sl.No	Topic	VSAQ (5X2=10)	MCQ (20X0.5=10)	TOTAL 20
<b>CONSERVATIVE DENTISTRY</b>				
1	Disinfection and sterilisation of operative armamentarium	1	1	3
2	Examination, diagnosis and treatment plan			
3	Clinical Cariology ➤ Clinical presentation ➤ Latest classification ➤ Disease diagnosis - Caries risk assessment and Lesion detection		1	
4	Non-operative treatment of dental caries ➤ At the microbial level ➤ At the dietary level ➤ At the host level ➤ Pit and fissure sealant procedure and sealant restoration procedure		2	1
5	Operative treatment of dental caries ➤ Caries removal ➤ Choice of restorative materials ➤ Designing the cavity for various restorations  Silver amalgam restorations - simple, compound and complex ➤ clinical approach ➤ Bonded amalgam ➤ complex amalgam ➤ failures in amalgam ➤ Mercury hygiene	1	2	3
	Light cure composite restorations ➤ clinical approach ➤ material advancements ➤ anterior restorations ➤ posterior restoration ➤ direct vs. indirect resin restoration ➤ Fibre reinforced resin restorations.  Glass ionomer restorations ➤ Clinical approach ➤ modified GIC			

**Conservative Dentistry and Endodontics**

6	Deep Caries management ➤ Direct and indirect pulp capping - clinical approach, latest advancements in materials ➤ Temporization and interim restorations ➤ Pulpotomy - clinical approach	1	2	4
7	Minimal Invasive Dentistry		1	
8	Non-carious disfigurement ➤ Clinical presentation ➤ Dentin hypersensitivity and management		1	
ENDODONTICS				
10	Rationale and principles in endodontic therapy ➤ Zones of inflammation ➤ Kronfeld's mountain pass concept	1	1	4
11	Pulpo-peri apical lesions ➤ Classification ➤ Clinical features ➤ Definitive management		1	
12	Diagnosis and treatment plan in endodontics ➤ Diagnosis ➤ Diagnostic aids - Vitality tests, Radiographs ➤ Treatment plan		2	
13	Endodontic armamentarium ➤ Classification ➤ Standardization ➤ Sterilization	1	1	5
14	Pulpotomy and Apexification ➤ Definition ➤ Rationale ➤ Materials ➤ Clinical techniques		1	
15	Access preparation ➤ Rationale ➤ Instruments ➤ Procedure		1	
16	Working length and width estimation ➤ Rationale ➤ Radiographic method ➤ Apex locators			

17	Clean and shape ➤ Rationale ➤ Irrigation and irrigants ➤ Canal shaping methods ➤ Conventional ➤ Rotary endodontics		1	
18	Intra canal medication			
19	Obturation ➤ Obturating and sealer materials ➤ Obturating techniques		1	
20	Traumatic injuries and management		1	

**Blue print of Clinical Examination**

1. Traditional - 60 marks
2. OSCE - 30 marks (6 stations of 5 marks each)

**Traditional:****Case history & diagnosis: 15 mins/10 marks**

Chief complaint, History of chief complaint, past dental history, Medical history, extra oral examination, Intra oral examination, Diagnosis, Treatment plan

One of the three Exercises allotted- class II silver amalgam, anterior LCR, Root Canal Therapy should be performed by the student during clinical examination

Steps	Class II silver amalgam	Anterior LCR	Root Canal Therapy
A/45 mins/20 marks	Cavity preparation for Class II	Caries removal, pumice prophylaxis, bevel, shade selection for anterior LCR	Caries removal, pre endodontic management, access cavity for RCT
B/ 15 mins/10 marks	Base, matrix and wedge for class II amalgam	Base, acid etching, matricing for composite restoration	Pre flaring and working length estimation for anterior RCT with the sheet
C /30 mins/20 marks	Silver amalgam restoration for class II and Post Op X-ray	Bonding, Light cure composite restoration for anterior, finishing and polishing and Post Op x-ray	Cleaning and shaping with master cone X-ray with the sheet

**BLUE PRINT FOR OSCE FOR FINAL YEAR CLINICAL**

SL.No	Stations	Weightage %	Domains
1	Diagnostic skill, decision making - Problem solving activity. – Dental Caries – CLASSIFICATION, caries risk status	10%	Cognitive
2	Diagnostic skill, decision making - Problem solving activity – RESTORATIVE	10%	Cognitive
3	Diagnostic skill, decision making- Problem solving activity - Pulpoperiapical lesions	10%	Cognitive
4	Isolation with rubber dam – Quadrant /single tooth	10%	Psychomotor
5	Preventive - Fluoride, P& F sealants - Dental Caries	10%	Cognitive
6	Restorative materials - Material aspect Direct Restorative materials & esthetic dentistry Indirect Restorative materials	8% 2%	Cognitive / Psychomotor
7	Endodontic - Root canal Treatment - Working length determination, instrumentation and materials	10%	Cognitive
8	Management of failed restorations–LCR, Amalgam, GIC	10%	Cognitive
9	Management of traumatic injuries to the teeth and restoration of badly broken down teeth	10%	Cognitive
10	Counselling - Treatment explanation Post restorative instructions / Preventive	10%	Attitude / Communication

**Recommended books****Clinical Conservative Dentistry**

Sl.No	Books Name	Author Name
1	Sturdevant's Art and Science of operative Dentistry.5 <sup>th</sup> edition	Sturdevant's, Theodore M Roberson
2	Pickard's Manual of Operative Dentistry. 8 <sup>th</sup> edition	E.A.M Kidd
3	Preservation and restoration of tooth structure 2 <sup>nd</sup> edition	Graham J. Mount
4	Textbook of operative Dentistry	Baum, Lund and Phillips
5	Fundamentals of Operative Dentistry – AContemporary approach.3rd edition	James B. Summit
6	Esthetic dentistry – 2nd edition	K.W. Aschheim and B.G. Dale

**Clinical Endodontics**

Sl.No	Books Name	Author Name
1	Pathways of Pulp -10 <sup>th</sup> edition	Stephen Cohen
2	Endodontics - 6 <sup>th</sup> edition	John I.Ingle
3	Endodontic therapy - 4 <sup>th</sup> edition	F.S.Weine
4	Problem Solving in Endodontics - 5 <sup>th</sup> edition	James L. Gutman
5	Principle and practice of Endodontics - 3 <sup>rd</sup>	Walton and Torabinejad

(UNIVERSITY MODEL QUESTION PAPER)  
IV BDS EXAMINATION

CONSERVATIVE DENTISTRY & ENDODONTICS

Time: 3 hours

Marks: 70

PART - I

MODEL MULTIPLE CHOICE QUESTIONS:

20X0.5=10

1. Which has the highest C Factor?
  - a. class I
  - b. class II
  - c. class V
  - d. class III
2. Chronic dental caries manifests as
  - a. Brown pigmented lesion
  - b. Undermining of the enamel
  - c. Greater depth than width
  - d. Severe pain on stimulation
3. The concentration of fluoride in the immediate vicinity of glass ionomer filling is found to be
  - a. 1 ppm
  - b. 3 pp
  - c. 4 ppm
  - d. 5 or more ppm
4. Mercuroscopic expansion in dental amalgam occurs when:
  - a. Moisture contamination occurs during condensation of zinc containing amalgam.
  - b. Moisture contamination occurs during trituration of zinc containing amalgam.
  - c. Mercury released because of electrochemical corrosion reacts with AgSn particle.
  - d. Mercury released because of electrochemical corrosion rereacts with Ag-Cu particle.
5. Microabrasion involves the use of :
  - a. Sulphuric acid
  - b. Acetic acid.
  - c. Phosphoric acid
  - d. Hydrochloric acid.
6. When etching enamel, approximately how long should the acid be in place?
  - a. 10 Sec
  - b. 15 Sec
  - c. 20 Sec
  - d. 25 Sec
7. When the pins are used in the cavity for amalgam, the strength of amalgam?
  - a. Increased
  - b. Decreased
  - c. Unchanged
  - d. May increase or decrease
8. Pickling to remove oxide layers in inlay is done with :
  - a. 50% HCl
  - b. 50% HF
  - c. 90% HCl
  - d. 80% H2SO4
9. Zone of carious dentin with demineralization of intertubular dentin and formation of fine crystals in tubule lumen.
  - a. Subtransparent dentin
  - b. Transparent dentin
  - c. Affected dentin (diseased)
  - d. Normal dentin

10. Floor of class II cavity for amalgam restoration, occlusally should be:
  - a. In enamel
  - b. In dentin.
  - c. In DEJ.
  - d. Just above the roof of pulp chamber
11. Alpha guttapercha is used with which technique
  - a. Lateral condensation
  - b. Obtura-II technique
  - c. Vertical condensation
  - d. MC spadden technique
12. Substantivity is associated with which irrigant
  - a. Chlorhexidine
  - b. Hypo chlorite
  - c. Tetraclean
  - d. MTAD
13. The confirmatory test for pulp vitality is
  - a. Thermal test
  - b. Test cavity
  - c. Analytical technology electrical pulp tester
  - d. Digital pulp videography
14. Pain on percussion before endodontic treatment indicates
  - a. Reversible pulpitis
  - b. Irreversible pulpitis
  - c. Pulpal necrosis
  - d. Inflammation of periodontal tissue
15. A seven year old boy arrives in the clinic with a complaint that his left central incisor is draining pus into his mouth. The tooth has been traumatized earlier. The vitality test reveals no response. What is the treatment of choice.
  - a. Apexogenesis / pulpotomy
  - b. Root canal treatment
  - c. Periodontal surgery to remove sinus tract
  - d. Apexification
16. Guttapercha is sterilized by
  - a. 5.2% NaOCl
  - b. 3% H<sub>2</sub>O<sub>2</sub>
  - c. Glass bead sterilizer
  - d. Alcohol
17. Step down technique is the preparation from
  - a. apical to middle third
  - b. apical to coronal third
  - c. coronal to middle third
  - d. coronal to apical third
18. Lingual shoulder can be removed with
  - a. Gates glidden burs
  - b. Safe tip diamonds
  - c. Safe tip carbide burs
  - d. All the above
19. A tell-tale symptom of internal resorption is
  - a. continuous sharp pain in the tooth without any apparent cause
  - b. pulpal discomfort early in the morning
  - c. short, sharp stabs of pain
  - d. Completely asymptomatic tooth or very mild pain

20. In which of the following is one-visit root canal treatment not advocated
- Pulp is necrotic and not symptomatic
  - Pulp is necrotic and symptomatic
  - Pulp is necrotic and there is a draining sinus tract
  - Pulp is vital and symptomatic

### SECTION A: CONSERVATIVE DENTISTRY

#### LONG ANSWER QUESTION

1x10=10

1. Define Dental caries. [2] Classify the carious lesions. [2] Enlist and explain the methods used to detect carious lesions. [6]

#### SHORT ANSWER QUESTIONS:

3x5=15

- Explain the Hydrodynamic theory of dentinal hypersensitivity
- Classify pins for complex restorations. [2] What are the indications and contraindications for pin amalgam restorations? [3]
- Define and classify veneers. [2] What are the indications and contraindications for direct composite veneering? [3]

### SECTION B : ENDODONTICS

#### LONG ANSWER QUESTION

1x10=10

5. Enumerate the diagnostic aids in endodontics. [5] Elaborate the pulp vitality tests. [5]

#### SHORT ANSWER QUESTIONS:

3x5=15

- Classify endodontic instruments. [3] Explain the standardization of an endodontic file. [2]. 7. Enumerate the cleaning and shaping methods. [3] Elaborate on the Sodium hypochlorite irrigant [2]
- Define a post. [2] Compare the custom made post and prefabricated post. [3]

### Section C: Conservative Dentistry and Endodontics

#### Very short answer question

2x5=10 marks

- Enlist any three intra canal medicaments
- Enumerate any two mediums where an avulsed tooth can be store.
- What is infected and affected dentin?
- Enlist the various forms in which fluoride is available?
- What is the best method of sterilizing the hand cutting instruments?



**PROSTHODONTICS, CROWN & BRIDGE**

Number of hours prescribed by DCI				
Theory hours		Clinical hours		Total
III year BDS 30	IV year BDS 80	III year BDS 70	IV year BDS 300	480
Total: 110		Total: 370		

**THIRD AND FOURTH YEAR**

**Goals:** To equip the undergraduate with the skills involved in fabrication of removable partial denture, complete denture and fixed partial denture and impart necessary knowledge and understanding in replacement of teeth with implants.

**Specific Learning Objectives:**

At the end of the training programme

1. The student will be able to evaluate the predicament associated with completely and partially edentulous state and be able to develop treatment plan outline for such conditions.
2. The student will be able to fabricate complete denture, removable partial denture on patients, including the laboratory steps associated with it.
3. The Student will be able to perform tooth preparation on typodont teeth for all ceramic and full veneer crown.
4. The student will be able to understand the implant treatment protocol and be able to motivate edentulous patients for the same when indicated.
5. The student will be able to communicate effectively the treatment procedure outline, treatment options for edentulism and care for prosthesis.

**Clinical :** III year 70 hours  
IV year 300 hours

**Theory :** III year 30 hours  
IV year 80 hours

**III yr 70 hours**

**III year theory (30 hrs)**

S.No	Topic	Weightage	Hours	MDN
1	Introduction to RPD, classification, Apple gate rules	3.5%	1	M
2	Anatomical landmarks in complete denture	3.5%	1	M
3	Relining and Rebasing	3.5%	1	M

4	Major connector, minor connector, direct retainer, indirect retainer, rests and rest seats	27%	4	M
5	Principles of RPD design, stress distribution and equalization	7%	2	D
6	Surveyor and surveying	10%	4	M
7	<b>Internal Assessment</b>	<b>1 hour</b>		
8	Mouth preparation	7%	2	M
	Laboratory procedure in RPD construction	7%	1	M
10	RPI, RPA clasps	3%	1	D
11	Special impression procedures in distal extension RPD	5%	1	D
12	<b>Internal Assessment</b>	<b>1 hour</b>		
13	Other forms of RPD	1%	1	D
14	Removable partial denture for MFP and attachments for RPD	3%	1	D
15	Principles of tooth preparation	7%	2	M
16	All ceramic, metal ceramic and All metal preparation	7%	2	M
	<b>Internal Assessment</b>	<b>1 hour</b>		

**III year Practicals in lab (70 hours)**

S.No	Topic	Weightage	Hours	MDN
1	Relining of processed maxillary denture	17%	12	M
2	Repair work of processed mandibular denture	11%	8	M
3	Tooth preparation on typodont teeth for all ceramic crown	28%	20	M
4	Tooth preparation on typodont teeth for full veneer crown	28%	20	M
5	Surveying Removable partially edentulous arches and locate undercuts	5%	4	D

**IV yr theory (80 hrs)**

S.No	Topic	Weightage	Hours	MDN
1	Biomechanics of edentulous state	1%	1	M
2	Mandibular movements TMJ and articulator	2%	2	M

3	Age changes in the elderly, bone, soft tissue, muscles, salivary changes	1%	1	M
4	Denture wearer and the sequelae in wearing faulty dentures including denture stomatitis.	1%	1	M
5	Diagnosis and treatment planning for patients with some teeth remaining and all teeth missing	4%	1	M
6	Nutrition, care and counseling and understanding mental attitude of denture patients.	1%	1	M
7	Impression making in complete dentures with anatomical considerations and microscopic anatomy - Objectives, theories and techniques [In clinics]	3%	1	M
8	Residual ridge resorption	2%	1	M
9	Posterior palatal seal	2%	1	M
10	Jaw relations - Classification, orientation relation and face bow, vertical jaw relation and methods, increased and decreased vertical jaw relation, centric relation, importance to record, methods to develop centric occlusion.	5%	4	M
11	Occlusion in Complete Dentures - Balanced occlusion - Definition, factors, need, interplay of factors	2%	2	M
12	Articulators concept, classification	2%	2	M
13	Selection of anterior teeth including dentogenic concept	1%	1	M
14	Posterior tooth forms	1%	1	M
15	Try in procedure [during clinical hours]	1%	1	M
16	Neutral zone, neutrocentric concept	1%	1	D
17	Overdentures	1%	1	D
18	Immediate dentures	1%	1	D
19	Single complete denture and combination syndrome	1%	1	D
20	Relining Rebasing	1%	1	D
21	Post insertion adjustments in denture treatment	1%	1	M
22	Abutment evaluation for FPD	2%	2	M
23	Pontic – requirements, types and indications	2%	2	M
24	Rigid and non rigid connectors	1%	1	N
25	Diagnosis and treatment planning for fixed partial denture	5%	2	M

26	Principles of tooth preparation Revision	2%	1	M
27	Occlusion in FPD	2%	1	D
28	Impressions in FPD	5%	2	M
29	Gingival retraction and soft tissue control	5%	2	M
30	Provisionalisation	5%	2	M
31	Die and Die lock trays	1%	1	N
32	Preparation for endodontically treated and damaged teeth Post and core restorations [Integrated]	2%	1	M
33	Laminates [Integrated in esthetic module]	2%	1	M
34	Management of periodontally weakened teeth [Integrated Teaching]	2%	1	D
35	Partial veneer crowns - anterior and posteriors including 7/8, mesial half crown [clinical hours]			
36	Luting agents and cementation	2%	1	D
37	Dental Implants – Materials, classification, Origin, advantages and disadvantages of various materials, components and types of crowns and dentures, Osseointegration, failures, Loading types, types of prosthesis	5%	2	M
38	Types of orofacial defects – Classification, Management of defects, Obturators, facial prosthesis, splints, stents	2%	1	N
39	Mandibular defects	2%	1	N
40	Resin Bonded Fixed Partial dentures	2%	1	D
41	Major Connector	2%	1	M
42	Surveyor	4%	2	M
43	Minor connector and denture base	2%	1	D
44	Rests and rest seats and Indirect retainer	2%	1	D
45	Direct Retainers	5%	1	M
46	Special Impression Procedures	2%	1	M
	<b>Unit Test</b>	<b>12 during posting hours</b>		

## III &amp; IV year Clinical hours (70 hours+300 hours)

S.No	Topic	Weightage	Hours	MDN
1	Removable partial denture clinical cases - 5	40%	Rem. hours	M
2	Complete Denture Cases -1-2	40%		1-M 2-N
3	Removable partial denture surveying and understanding the concept and perform on simulated cases requiring coronoplasty of proper path of insertion and occlusal plane for five cases	5%	20	M
4	Treatment planning for 10 standard cases requiring proper preparation/sequencing/modification of treatment plan	5 %	20	M
5	Tooth preparation on typodont teeth for all ceramic crown	5%	20	M
6	Tooth preparation on typodont teeth for full veneer crown	5%	20	M

**Integrated Modules**

1. Implantology
2. Esthetic dentistry
3. Management of badly mutilated dentition including post and core restorations

**Quota****Clinical**

1. Complete dentures 2
2. Removable partial denture 5

**Preclinical work**

1. Complete veneer crown posterior on typodonts
2. Anterior Porcelain jacket crown on typodont
3. Surveying and designing tooth and tissue supported and tooth supported RPD

**Discussion topics in clinics with demonstration**

1. Diagnosis and treatment planning in CD
2. Primary and secondary impression
3. Flasking and Processing complete and partial dentures
4. Try in and delivery including post insertion adjustments.
5. Surveying with instrument
6. Fabrication of acrylic RPD with surveyor and concept of block outs
7. Diagnosis and treatment planning for 30 case scenarios

**Scheme of Examination****1. Theory: 70 Marks**

Part I : 20 MCQs (20 X 0.5 = 10 Marks)  
~ 254 ~

Part II :

Section A: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)

Section B: 1 LAQ (1 X 10 = 10 Marks)  
3 SAQs (3 X 5 = 15 Marks)

Section C: 5 VSAQs (5 X 2 = 10 Marks)

**Theory Internal assessment:** 10 marks

**Viva voce:** 20 marks

**Total = 100 Marks**

**2. Practical examination:** 90 Marks

**Practical Internal Assessment – 10 Marks**

**Total – 100 Marks**

**BLUEPRINT OF THEORY PAPER:**

- |   |             |         |
|---|-------------|---------|
| 1. Section A - CD and RPD - 1 LAQ [1x10]        | 3 SAQ [3x5] | 25marks |
| 2. Section B FPD Implant and MFP - 1 LAQ [1x10] | 3 SAQ [3x5] | 25marks |

**The questions can be distributed as follows: please refer to Question bank and syllabus**

70 % should be from the Must know areas – Essays and Short Notes

20 % should be from Desirable to know areas – All [Essays should not be asked]

10 % should be from Nice to know areas – All [Essays should not be asked]

**Viva** **20 marks**

**Internal Assessment** **10 marks**

**MATRIX**

[One of the following patterns can be adopted by the paper setter]

*[Please correlate with syllabus for weightage]*

**Model 1**

If LAQ is asked from Impression materials or anatomical landmarks then the pattern is as follows

SECTION A [ COMPLETE DENTURE AND REMOVABLE PARTIAL DENTURE]				
S.No	Topic	LAQ [1X10]	SAQ [3X5]	25 MARKS
1	Biomechanics of edentulous state, Age changes in the elderly, Nutrition for the geriatric			
2	Impression making in dentures including macroscopic and microscopic landmarks Components of RPD Principles of designing RPD Surveyor and surveying	1		10

3	Jaw relation procedure, the biological considerations, articulators		1	5
4	Selection of teeth, teeth arrangement, balanced occlusion and other Occlusal schemes for dentures		1	5
5	Try in, delivery and postinsertion adjustments			
6	Immediate dentures, overdentures, implant prosthodontics		1	5
7	Mouth Preparation special impression procedures and laboratory procedures			
<b>SECTION - B [FIXED PARTIAL DENTURE AND IMPLANT PROSTHODONTICS, MAXILLOFACIAL PROSTHODONTICS]</b>				
8	Principles of tooth preparation	1		10
	Pontics			
9	Individual crown preparations and types of retainers, provisional restorations		1	5
10	Laboratory procedures, dies and casting			
11	Isolation, gingival retraction, Impression making and occlusion		1	5
12	Luting agents, connectors and retainers			
13	Implants		1	5
14	Maxillofacial Prosthodontics			
15	Resin bonded bridges, Special abutments and preparations in compromised teeth			

**Model 2**

If LAQ is asked from Impression materials or anatomical landmarks then the pattern is as follows

<b>SECTION A [ COMPLETE DENTURE AND REMOVABLE PARTIAL DENTURE]</b>				
S.No	Topic	LAQ [1X10]	SAQ [3X5]	25 MARKS
1	Biomechanics of edentulous state, Age changes in the elderly, Nutrition for the geriatric			
2	Impression making in dentures including macroscopic and microscopic landmarks Components of RPD Principles of designing RPD Surveyor and surveying		1	5

3	Jaw relation procedure, the biological considerations, articulators	1		10
4	Selection of teeth, teeth arrangement, balanced occlusion and other Occlusal schemes for dentures		1	5
5	Try in, delivery and postinsertion adjustments			
6	Immediate dentures, overdentures, implant prosthodontics		1	5
7	Mouth Preparation special impression procedures and laboratory procedures			
<b>SECTION - B [FIXED PARTIAL DENTURE AND IMPLANT PROSTHODONTICS, MAXILLOFACIAL PROSTHODONTICS]</b>				
8	Principles of tooth preparation		1	5
	Pontics			
9	Individual crown preparations and types of retainers, provisional restorations	1		10
10	Laboratory procedures, dies and casting			
11	Isolation, gingival retraction, Impression making and occlusion		1	5
12	Luting agents, connectors and retainers			
13	Implants		1	5
14	Maxillofacial Prosthodontics			
15	Resin bonded bridges, Special abutments and preparations in compromised teeth			

**PART I (MCQs) & Section C (VSAQs)**

<b>SECTION A [ COMPLETE DENTURE AND REMOVABLE PARTIAL DENTURE]</b>				
S.No	Topic	MCQ [20x0.5]	VSAQ [5X2]	20 MARKS
1	Biomechanics of edentulous state, Age changes in the elderly, Nutrition for the geriatric		1	2
2	Impression making in dentures including macroscopic and microscopic landmarks Components of RPD Principles of designing RPD Surveyor and surveying	2		1



3	Jaw relation procedure, the biological considerations, articulators	2	1	3
4	Selection of teeth, teeth arrangement, balanced occlusion and other Occlusal schemes for dentures	2		1
5	Try in, delivery and postinsertion adjustments	1		0.5
6	Immediate dentures, overdentures, implant prosthodontics	2		1
7	Mouth Preparation special impression procedures and laboratory procedures	1	1	2.5
<b>SECTION - B [FIXED PARTIAL DENTURE AND IMPLANT PROSTHODONTICS, MAXILLOFACIAL PROSTHODONTICS]</b>				
8	Principles of tooth preparation	2	1	3
	Pontics			
9	Individual crown preparations and types of retainers, provisional restorations	1		0.5
10	Laboratory procedures, dies and casting	1		0.5
11	Isolation, gingival retraction, Impression making and occlusion	2	1	3
12	Luting agents, connectors and retainers	1		0.5
13	Implants	1		0.5
14	Maxillofacial Prosthodontics			
15	Resin bonded bridges, Special abutments and preparations in compromised teeth	2		1
<b>Total marks</b>				<b>20</b>

**BLUEPRINT FOR PRACTICAL EXAMINATION**

**100 marks**

**Performance during practicals**

**90 marks**

1. Part I – Border moulding and final impression
2. Part II – Objective Structured Practical Examination

40 marks

50 marks

**Internal Assessment – Prosthodontics**

**10**

**Matrix for Part II Objective Structured Practical Examination OSPE**

S.No	Evaluated Skills	Predominant Domain	Weightage
1	Removable prosthesis – Complete Denture	C-Application	10%
2	Fixed Partial Denture	C-Application	10%
3	Overdenture/Immediate/transitional denture	C-Recall	2.5%
4	Implant	C-Recall	2.5%
5	Removable prosthesis - RPD - acrylic, CM RPD, surveying	C- Application C-Understanding	5%
6	Maxillofacial, Splints	C-Recall	5%
7	Laboratory procedures	C- Recall	5%
8	CD/ RPD failure	C-Understanding	10%
9	FPD/Implant failure	C-Understanding	10%
10	Counselling – Treatment options / post denture delivery instructions / sequelae of tooth loss	A-Responding	10%
11	Diagnostic and problem solving ability	C-Understanding	10%
12	Secondary Impression making for complete dentures in special tray	P – Perform	10%
13	Tooth preparation for all ceramic and full veneer crown	P – Perform	10%

## Text Books

Book	Author	Edition	Publications	Address	year
Prosthodontic treatment for edentulous patients	Zarb, Bolender and Carlson	Thirteen	Mosby	CV Mosby, USA	2012
Essentials of complete denture Prosthodontics	Sheldon Winkler	Second	Saunders	WB Saunders Co, Philadelphia	1979
Laboratory procedures for complete dentures	Rudd Morrow	Second	Mosby	CV Mosby, USA	1986
Syllabus of complete dentures	Charles M Heartwell	Fourth	Lea Febiger	Philadelphia USA	1986
Fundamentals of tooth preparation	Herbert T Shillingburg		Quintessence	Quintessence Publishing company	1986
Removable partial Prosthodontics	Kenneth Stewart	Fourth	Quintessence	Quintessence Publishing company	2008

**UNIVERSITY MODEL QUESTION PAPER  
IV BDS EXAMINATION  
PROSTHODONTICS & CROWN AND BRIDGE**

**Time: 3hours**

**Max Marks 70**

**PART - I**

**MODEL MULTIPLE CHOICE QUESTIONS:**

**20X0.5=10**

1. The total surface area for maxillary denture base is approximately
  - a. 25sqcm
  - b. 52sqcm
  - c. 12sqcm
  - d. 21sqcm
2. The total chewing time in a day is approximately
  - a. 30 minutes
  - b. 1 hour
  - c. 1hour and 30 minutes
  - d. 2 hours
3. Complete Removable dentures should be removed
  - a. Every day for allow good vascularisation
  - b. Only after three days after insertion for initial check up
  - c. Should be removed every week and given 1 day rest
  - d. Should be removed in the night every alternate day
4. The material recommended for wash impression for complete dentures is
  - a. Impression Plaster
  - b. Addition silicone
  - c. Irreversible hydrocolloid
  - d. Reversible hydrocolloid
5. The seal area is obtained in mandibular denture is all except
  - a. Sublingual fold space
  - b. Retromolar pad area
  - c. Buccal and lingual sulcus
  - d. Buccal shelf area
6. Major connector of choice for a high floor of mouth would be
  - a. Swing lock labial bar
  - b. Lingual bar
  - c. Double Lingual bar
  - d. Lingual plate
7. Of the following which component lies above the survey line
  - a. Entire length of the retentive terminal
  - b. Only the tip of the retentive terminal
  - c. Entire length of the reciprocal arm
  - d. Only the tip of the reciprocal arm
8. All of the following are philosophies of designing in RPD except
  - a. Stress equalization
  - b. Physiologic basing
  - c. Stress distribution
  - d. Inclined plane
9. Which component of RPD helps in reducing heel away movement of a mandibular denture
  - a. Direct retainer
  - b. Indirect retainer
  - c. Minor connectors
  - d. Denture base
10. Hybrid dentures are those which are intended to
  - a. Mix two or more attachments to enhance retention
  - b. Reduce the weight of the denture
  - c. To be used in reduced inter arch space
  - d. None of the above

11. The pontic which can be placed in an extracted socket is
  - a. Ovate pontic
  - b. Modified ridge lap
  - c. Ridge lap
  - d. Hygienic
12. Prefabricated pontics are commonly used today. The reason being it is easily available.
  - a. Statement and reason are correct
  - b. Statement and reason are incorrect
  - c. Statement is correct reason is incorrect
  - d. Statement is incorrect and reason is correct
13. The minimum taper in a crown preparation is given to enhance
  - a. Retention
  - b. Stability
  - c. Resistance
  - d. Structural durability
14. The lone standing abutment between two single tooth edentulous span is referred as
  - a. Pier
  - b. Telescopic
  - c. Cantilever
  - d. The most strong abutment for a denture
15. The luting agents provide retention by
  - a. Chemical adhesion to tooth structure
  - b. Mechanical interlocking to tooth structure
  - c. Frictional resistance between crown and tooth
  - d. All of the above
16. The post length should be
  - a. Five times the core height
  - b. More than the crown height
  - c. As short as possible and half of the crown height
  - d. As short as possible and half of the core height
17. All of the following are retainers for fixed partial dentures except
  - a. Inlay
  - b. Onlay
  - c. Full crown
  - d. Post and core
18. Surgical obturator is
  - a. Fabricated before surgery
  - b. Fabricated during surgery
  - c. Fabricated after surgery
  - d. Fabricated only 3 months after surgery
19. Attachments in Fixed partial denture are given as
  - a. Rigid connection
  - b. Non rigid connection
  - c. As both
  - d. None of the above as they are given only in RPD
20. Occlusion in fixed partial dentures can be all of the following except
  - a. Cusp fossa relationship
  - b. Cusp marginal ridge relationship
  - c. Unilaterally balanced occlusion
  - d. Bilaterally balanced occlusion.

**PART II**

**SECTION A**

**LONG ANSWER QUESTION:**

**1X10=10**

1. Mention the Ideal Requirements of an impression material. Explain with an example an impression material which can be used for dentulous and edentulous situations with the composition, advantages, disadvantages, composition and handling characteristics

**SHORT ANSWER QUESTIONS:**

**3X5=15**

2. Methods to record Vertical Jaw Relation for Complete Dentures
3. Dentogenic Concept in Anterior teeth selection for complete dentures
4. Advantages of Overdentures over conventional dentures

**SECTION B**

**LONG ANSWER QUESTION:**

**1X10=10**

5. Discuss the principles of tooth preparation and draw a labeled diagram of an all ceramic preparation with the principles involved.

**SHORT ANSWER QUESTIONS:**

**3X5=15**

6. Discuss why provisional restorations are needed
7. Mention mechanical methods of gingival retraction
8. Draw the parts of an implant fixture and mention any four materials that are used for implants.

**SECTION C**

**5x2=10**

9. Mention any four age changes in completely edentulous state
10. Mention any four importance for centric relation in complete dentures
11. Compare with any two points the difference between hindel's and functional reline technique
12. Mention any two methods to record fixed partial denture impression
13. Mention the prosthesis and the mechanism of correction for a mandibulectomy patient who is having a deviated mandible

## ORTHODONTICS & DENTOFACIAL ORTHOPAEDICS

Number of hours prescribed by DCI			
Theory hours	Clinical hours		Total
III year BDS 30	III year BDS 70	IV year BDS 130	250
Total: 50	Total: 200		

### GOAL

To prevent and control malocclusion and promote feasible facial profile through organized orthodontic procedures.

### OBJECTIVES

#### KNOWLEDGE

Undergraduate programme in Orthodontics is designed to enable the qualifying dental surgeon to diagnose, analyse and treat common orthodontic problems by preventive, interceptive and corrective orthodontic procedures.

#### SKILL

- To obtain proper clinical history, examination of the patient, and interpretation of the data to arrive at a diagnosis about different types of malocclusion and to render appropriate treatment.
- To perform wire bending exercises and fabrication of appliances.

#### ATTITUDE

- Develop adequate communication skills particularly with the patients giving them the various options available to manage a malocclusion and obtain a true informed consent from them for the most appropriate treatment.
- Develop the ability to communicate with professional colleagues.

The following basic instructional procedures will be adapted to achieve the above objectives.

### COMPETENCIES

At the completion of the undergraduate training programme the graduates shall be competent in the following:

**SYLLABUS IV YEAR**

Theory : no : of hours = 50

IV YEAR				
Sl no	TOPIC	System weightage	Number of hours	Must know (M)/ Desirable to know (D) / Nice to know (N)
1	General principles of growth and development, facial structures, dentition and occlusion, functional development	15%	6 Hrs	M
2	Occlusion, Classification of malocclusion	8%	4 Hrs	M
3	Biology of tooth movement, Anchorage	12%	6 Hrs	M
4	Orthodontic diagnosis, Cephalometrics, Model Analysis, Skeletal Maturity indicators	10%	4 Hrs	M
5	Habits	6%	2 Hrs	M
6	Preventive, Interceptive orthodontics	12%	2 Hrs	M
7	Arch expansion	6%	4 Hrs	M
8	Orthodontic appliances -Removable, Fixed	7%	4 Hrs	M
9	Myofunctional and Orthopedic Appliances	7%	4 Hrs	M
10	Retention & Relapse	10%	4 Hrs	M
11	Cleft lip & Palate	2%	4 Hrs	D
12	Management of open bite, Deep bite, Cross bite	3%	4 Hrs	D
13	Surgical orthodontics	2%	2 Hrs	N

**CLINICAL HOURS FOR II<sup>nd</sup>, III<sup>rd</sup> and IV<sup>th</sup> YEAR = 200 Hrs****SYLLABUS for II year**

Sl.No	CLINICAL	OBSERVE / ASSIT / PERFORM
1.	Basic wire bending exercise (includes straightening of wire 3l, fabrication of square 1", rectangle 2"x 1", triangle 1"x1"x1", circle 1" radius, 3U loop, 3V loop, 5UV loop with stainless steel wire)	Observe & Perform

2.	Fabrication of clasps (fabrication of 5 important clasps- circumferential clasp, Jackson's clasp, triangular clasp, Adam's clasp, Modified Adam's clasp)	Observe & Perform
3.	Fabrication of labial bows (Fabrication of different types of labial bows– Shortlabial bow, Long labial bow, Split labial bow, Robert's retractor, High labialbow)	Observe & Perform

**SYLLABUS FOR IIIYEAR**

Sl.No	CLINICAL	OBSERVE / ASSIT / PERFORM
1.	Fabrication of springs (Fabrication of Finger spring, Single Cantilever spring, Double Cantilever spring, U loop canine retractor, Helical canine retractor, Buccal canine retractor, Palatal canine retractor, Coffin spring, Spring for lingual movement of premolar, T. spring)	Observe & Perform
2.	Fabrication of appliances (wire bending of the appliances and acrylisation, finishing and polishing of the following appliances – Hawley's appliance, Hawley's appliance with tongue spike, Hawley's, appliance with double cantilever spring, Oral screen , Catalan's appliance.	Observe & Perform

**SYLLABUS FOR IVYEAR**

Sl.No	CLINICAL	OBSERVE / ASSIT / PERFORM
1.	Case history recording for 1 clinical case	Assist
2.	Case history recording for 4 clinical case	Perform
3.	Preparation of study model	Observe/Perform
4.	Model analysis	Observe/Perform
5.	Cephalometric analysis	Observe/Perform



**SYLLABUS FOR IVYEAR**

SL.No	TOPIC	SPECIALITY INTEGRATING
1	Growth and development	Pediatric and Preventive Dentistry
2	Occlusion	Prosthodontics, Pediatric and Preventive Dentistry
3	Removable appliance	Pediatric and Preventive Dentistry
4	Arch expansion	Pediatric and Preventive Dentistry
5	Habits	Pediatric and Preventive Dentistry
6	Diagnostic aids	Oral medicine
7	Myofunctional appliance	Pediatric and Preventive Dentistry
8	Orthopaedic appliance	Pediatric and Preventive Dentistry
9	Cleft lip and palate	Prosthodontics, Pediatric and Preventive Dentistry, Oral surgery
10	Adult orthodontics	Periodontics
11	Surgical orthodontics	Oral surgery
12	Gummy smile	Oral surgery
13	Esthetic Dentistry	Conservative Dentistry

**Early Clinical Exposure**

Sl. No	Topic	Number of hours	Must know/ Desirable to know / Nice to know
1.	Introduction to Orthodontic materials	1	D
2.	Introduction to the concepts of orthodontic principles	1	D
3.	Introduction to the concepts of removable appliances	1	D
4.	Display of different orthodontic appliances	1	D

### **Scheme of Examination**

#### **1. Theory: 70 Marks**

Part I: 20 MCQs ( $20 \times 0.5 = 10$  Marks)

Part II:

Section A: 1 LAQ ( $1 \times 10 = 10$  Marks)  
3 SAQs ( $3 \times 5 = 15$  Marks)

Section B: 1 LAQ ( $1 \times 10 = 10$  Marks)  
3 SAQs ( $3 \times 5 = 15$  Marks)

Section C: 5 VSAQs ( $5 \times 2 = 10$  Marks)

**Theory Internal assessment: 10 marks**

**Viva voce: 20 marks**

**Total = 100 Marks**

#### **2. Practical examination: 90 Marks**

**Practical Internal Assessment – 10 Marks**

**Total – 100 Marks**

**Blue print of question paper**

**Part I (MCQs):** Basic Concepts of Growth and Development, Diagnosis, Treatment planning and Mechanics for 10 marks

**PART II:**

Section A: Basic Concepts of Growth and Development and Diagnosis for 25 marks

Section B: Treatment planning and Mechanics for 25 marks

Section C (VSAQs): Basic Concepts of Growth and Development, Diagnosis, Treatment planning and Mechanics for 10 marks

The questions can be distributed as follows: please refer to Question bank and syllabus

70 % should be from the Must know areas

20 % should be from Desirable to know areas

10 % should be from Nice to know areas

**SECTION A: BASIC CONCEPTS OF GROWTH AND DEVELOPMENT AND DIAGNOSIS****MATRIX - 1**

If LAQ is from general principles of growth and development, facial structures, dentition and occlusion, functional development the matrix is as follows :

S.No	Topic	LAQ	SAQ	25 MARKS
1	General principles of growth and development, facial structures, dentition and occlusion, functional development	1		10
2	Occlusion, Classification of malocclusion		1	5
3	Biology of tooth movement, Anchorage		1	5
4	Orthodontic diagnosis, Cephalometrics, Model Analysis, Skeletal Maturity indicators and Habits		1	5

**MATRIX - 2**

If LAQ is from biology of tooth movement, anchorage the matrix is as follows:

S.No	Topic	LAQ	SAQ	25 MARKS
1	General principles of growth and development, facial structures, dentition and occlusion, functional development		1	5
2	Occlusion, Classification of malocclusion		1	5
3	Biology of tooth movement, Anchorage	1		10
4	Orthodontic diagnosis, Cephalometrics, Model Analysis, Skeletal Maturity indicators and Habits		1	5

**SECTION - B : TREATMENT PLANNING AND MECHANICS****MATRIX - 1**

If LAQ is from Preventive, Interceptive Orthodontics and arch expansion the matrix is as follows:

S.No	Topic	LAQ	SAQ	25 MARKS
1	Preventive, Interceptive orthodontics and Archexpansion	1		10
2	Orthodontic appliances - Removable, Fixed, Myofunctional and Orthopedic Appliances		1	5
3	Management of common malocclusion, Retention & Relapse		1	5
4	Cleft lip & Palate, Surgical orthodontics		1	5

**MATRIX - 2**

If LAQ is from Retention & relapse and management of common malocclusion the matrix is as follows:

S.No	Topic	LAQ	SAQ	25 MARKS
1	Preventive, Interceptive orthodontics and Arch expansion		1	5
2	Orthodontic appliances - Removable, Fixed, Myofunctional and Orthopedic Appliances		1	5
3	Management of common malocclusion, Retention & Relapse	1		10
4	Cleft lip & Palate, Surgical orthodontics		1	5

**PART I (MCQs) & SECTION-C (VSAQs)****BASIC CONCEPTS OF GROWTH & DEVELOPMENT, DIAGNOSIS, TREATMENT PLANNING AND MECHANICS.****MATRIX 1**

S.No	Topic	VSAQ	MCQ	20 MARKS
1	General principles of growth and development, facial structures, dentition and occlusion, functional development	1	2	3
2	Occlusion, Classification of malocclusion	1	2	3
3	Biology of tooth movement, Anchorage	1	2	3

4	Orthodontic diagnosis, Cephalometrics, Model Analysis, Skeletal Maturity indicators	1	2	3
5	Habits		1	0.5
6	Preventive, Interceptive orthodontics	1	2	3
7	Arch expansion		1	0.5
8	Orthodontic appliances – Removable, Fixed		1	0.5
9	Myofunctional and Orthopedic Appliances		1	0.5
10	Retention & Relapse		2	1
11	Cleft lip & Palate		2	1
12	Management of open bite, Deep bite, Cross bite		1	0.5
13	Surgical orthodontics		1	0.5

**MATRIX 2**

S.No	Topic	VSAQ	MCQ	20 MARKS
1	General principles of growth and development, facial structures, dentition and occlusion, functional development		2	1
2	Occlusion, Classification of malocclusion		1	0.5
3	Biology of tooth movement, Anchorage		1	0.5
4	Orthodontic diagnosis, Cephalometrics, Model Analysis, Skeletal Maturity indicators		1	0.5
5	Habits		2	1
6	Preventive, Interceptive orthodontics		1	0.5
7	Arch expansion	1	2	3
8	Orthodontic appliances – Removable, Fixed	1	2	3
9	Myofunctional and Orthopedic Appliances	1	2	3
10	Retention & Relapse	1	1	2.5
11	Cleft lip & Palate	1	1	2.5
12	Management of open bite, Deep bite, Cross bite		2	1
13	Surgical orthodontics		2	1

**Blueprint for practical examination:**

**Practical examination:**

- A) Traditional=(40marks)
  - 1- Case history
  - 2-Extraoral examination
  - 3-Intraoral examination
  - 4-Diagnosis
  - 5-Treatment planning
- B) OSCE/OSPE =50 marks
  - 1-Spotters =Total 5 stations (each 4marks)
  - 2-Wire bending= total 5 stations (each 6marks)

**Recommended books**

1. Contemporary orthodontics. William R. Proffit. 5<sup>TH</sup> edition. Mosby
2. Orthodontics for dental students. White and Gardiner
3. Handbook of orthodontics. Moyers
4. Orthodontics - Current principles and technique. Graber, Vanarsdall. 4<sup>th</sup> edition. Elsevier.
5. Design, construction and use of removable Orthodontic appliances. C. Philip Adams. 6<sup>th</sup> edition. Varghese.
6. Clinical orthodontics: vol1 & 2 Salzmann
7. Textbook of Orthodontics. Gowri Shankar. 1st edition. Parus.
8. Principles and practice. Basavaraj Subashchandra. Jaypee.
9. Orthodontic materials. William Brantley. Thieme

**MODEL QUESTION PAPER  
IV BDS EXAMINATION  
ORTHODONTICS & DENTOFACIAL ORTHOPEDICS**

**Time: 3 hours**

**Max Marks 70**

**PART - I**

**MODEL MULTIPLE CHOICE QUESTIONS:**

**20X0.5=10**

1. Which branch of orthodontics is mostly related to mixed dentition period?
  - a. Preventive
  - b. Interceptive
  - c. Corrective
  - d. Surgical
2. Meckels cartilage extends from
  - a. Otic capsule
  - b. Styloid bone
  - c. Hyoid cartilage
  - d. None of the above
3. Main growth site in mandible
  - a. Gonial angle
  - b. Body of mandible
  - c. Condylar cartilage
  - d. Coronoid process and ramus
4. Accepted latency between exfoliation of deciduous teeth and eruption of succedaneous permanent tooth
  - a. 3 months
  - b. 6 months
  - c. 9 months
  - d. 12 months
5. The average leeway space available in each half of the maxilla is approximately
  - a. 0.9mm
  - b. 2.9 mm
  - c. 4.0 mm
  - d. 6.9mm
6. Which of the following is not a vertical trajectory of force
  - a. Hard palate buttress
  - b. Fronto nasal buttress
  - c. Malar Zygomatic buttress
  - d. Pterygoid buttress
7. Bennett shift is
  - a. Lateral movement of body of mandible
  - b. Direct lateral shift of working side condyle
  - c. Direct lateral shift of balancing side condyle
8. Hyperactive mentalis muscle is a prominent feature of
  - a. Class I
  - b. Class II div 1

- c. Class II div 2
  - d. Class III
9. Ackermann profit classification – outer envelope represents
- a. Alignment
  - b. Profile
  - c. Transverse relation
  - d. Vertical relation
10. Abnormal thick labial frenum results in
- a. Midline diastemma
  - b. Imbrication
  - c. Labial inclination of incisors
  - d. All the above
11. Dolicocephalic refers to
- a. Long wide face
  - b. Long narrow face
  - c. Short wide face
  - d. Short narrow face
12. Blanch test is used in diagnosis of
- a. Abnormal frenal attachment
  - b. Pseudo Class III
  - c. Tongue thrusting
  - d. Thumb sucking
13. Study models are used
- a. As references in orthodontic cases
  - b. To show shape, size and position of teeth
  - c. As an aid in treatment planning
  - d. All the above
14. Angle SNA is used to
- a. Relate maxilla to mandible
  - b. Relate maxilla to cranial base
  - c. Relate mandible to maxilla
  - d. None of the above
15. Optimum orthodontic force according to Schwartz
- a. 30-36 g/sq.cm
  - b. 20-26 g/sq.cm
  - c. 20-26 g/sq.inch
  - d. 20-26 g/sq.mm
16. A tooth will translate when its centre of rotation is at
- a. Incisal edge
  - b. Bracket
  - c. Infinity
  - d. The root apex
17. Reinforced anchorage example is
- a. Bite plane anterior
  - b. Posterior bite plane
  - c. Inclined bite plane
  - d. All the above



18. When the length of the spring is double the force exerted by the spring
  - a. decreases by 8 times
  - b. increases by 8 times
  - c. decreases by 16 times
  - d. increases by 16 times
19. Which of the following is basically not a vestibular appliance
  - a. Oral screen
  - b. Activator
  - c. Lip bumper
  - d. Frankel
20. Chin cup is used to correct
  - a. Skeletal Class I malocclusion
  - b. Skeletal Class II malocclusion
  - c. Skeletal Class II malocclusion
  - d. Dental Class I malocclusion

**PART II  
SECTION A**

**LONG ANSWER QUESTION:**

**1x10 = 10**

1. Name the different theories of growth. (3 marks)  
Define functional matrix theory. (2 marks)  
Explain Functional matrix hypothesis in detail. (5 marks)

**SHORT ANSWER QUESTIONS:**

**3x5 = 15**

2. Classification of anchorage
3. Angle's classification of malocclusion
4. Clinical phases of thumb sucking.

**SECTION - B**

**LONG ANSWER QUESTION:**

**1x10 = 10**

5. Define Serial extraction. (2 marks)  
Write the indications, contraindications for serial extraction. (3 marks)  
Explain Tweeds method for serial extraction. (5 marks)

**SHORT ANSWER QUESTIONS:**

**3x5 = 15**

6. Difference between slow and rapid maxillary expansion.
7. Mention the theories of retention.
8. Discuss the design and construction of Adams Clasp.

**SECTION - C**

**VERY SHORT ANSWER QUESTIONS:**

**5x2 = 10**

9. What is Growth spurt.
10. Write any four advantages of Ackerman - proffit
11. What is frontal resorption
12. Write any four uses of Bitewing Radiographs.
13. Give any four fixed non-functional space maintainers.

## PUBLIC HEALTH DENTISTRY

Number of hours prescribed by DCI			
Theory hours	Clinical hours		Total
IV year BDS 60	III year BDS 70 hours	IV year BDS 130	260
Total: 60	Total: 200		

### GOAL

To prevent and control oral diseases and promote oral health through organized community efforts

### OBJECTIVES

#### KNOWLEDGE

At the conclusion of the course the student shall have a knowledge of the basis of public health, preventive dentistry, public health problems in India, Nutrition, Environment and their role in health, basics of dental statistics, epidemiological methods, National oral health policy with emphasis on oral health policy.

#### SKILL AND ATTITUDE

At the conclusion of the course the students shall have the skills of identifying health problems affecting the society, conducting health surveys, conducting health education classes and deciding health strategies. Students should develop a positive attitude towards the problems of the society and must take responsibilities in providing health.

#### COMMUNICATION ABILITY

At the conclusion of the course the student should be able to communicate the needs of the community efficiently, inform the society of all the recent methodologies in preventing oral disease

#### COMPETENCIES

At the completion of the undergraduate training programme the graduates shall be competent in the following:

1. Apply the principles of health promotion and disease prevention
2. Have knowledge of the organization and provision of health care in community and in the hospital service
3. Have knowledge of the prevalence of common dental conditions in India
4. Have knowledge of community based preventive measures
5. Have knowledge of the social, cultural and environmental Factors which contribute to health or illness
6. Administer hygiene instructions, topical fluoride therapy and fissure sealing
7. Educate patients concerning the etiology and prevention of oral disease and encourage them to take responsibility for their oral health.

**SYLLABUS CONTENT**

Theory: no. of hours = 60

<b>FINAL BDS – PUBLIC HEALTH</b>				
<b>Sl no</b>	<b>TOPIC</b>	<b>System weightage</b>	<b>Number of hours</b>	<b>Must know (M)/ Desirable to know (D) / Nice to know (N)</b>
1	Concept of Health	3.3%	2	M
2	Concept of Diseases	1.6%	1	M
3	Concept of Prevention	1.6%	1	M
4	Public Health in India	3.3%	2	N
5	International Public Health	1.6%	1	N
6	General Epidemiology - Introduction	3.3%	2	M
7	Basic Measurements of Epidemiology	3.3%	2	M
8	Epidemiological Methods - Descriptive, Analytical, Experimental	5%	3	M
9	Planning & Evaluation	3.3%	2	M
10	Sampling	1.6%	1	N
11	Bio-statistics	1.6%	1	D
12	Bias	1.6%	1	D
13	Health Education	6.6%	4	M
14	Environment & Health - Introduction	1.6%	1	M
15	Water Purification & Sewage Treatment	5%	3	N
16	Waste Disposal	3.3%	2	N
<b>PUBLIC HEALTH DENTISTRY</b>				
17	Oral Health Survey	5%	3	M
18	Indices in Dental Diseases O.H.I, O.H.I-S, Plaque, Gingival, D.M.F.T, D.M.F.S, C.P.I.T.N, CPI, WHO proforma	5%	3	M
19	Epidemiology & Aetiology of Dental Caries, Periodontal Diseases & Oral Cancer	6.6%	4	M
20	Dental Practice Management	3.3%	2	N
21	Dental Manpower	3.3%	2	M

22	Ethics in Dental Practice	1.6%	1	M
23	Payment in Dental Care	1.6%	1	D
24	School Health Program and Dental Public Health Program	6.6%	4	D
25	D.C.I & I.D.A	1.6%	1	N
<b>PREVENTIVE DENTISTRY</b>				
26	Prevention of Dental Caries, Periodontal Disease, Oral cancer, Malocclusion	6.6%	4	M
27	Caries Activity Test	1.6%	1	D
28	Dental Caries Vaccine	1.6%	1	N
29	Pit & Fissure Sealants	1.6%	1	M
30	A.R.T	1.6%	1	M
31	Fluorides in Dentistry	11.6%	7	M
32	Minimum Invasive Dentistry	1.6%	1	N
<b>SOCIAL SCIENCES</b>				
33	Social & Behavioural Sciences	1.6%	1	N
34	Concept of Sociology	1.6%	1	N
35	Psychology Child & Adult	1.6%	1	N
36	Cultural Factors in Health & Diseases	1.6%	1	N

**Clinicals: no. of hours = 200**

SL.No	Clinical cases	Observe / Assist / Perform
1.	Case History – 2 cases	Observe
2.	Case history – 3 cases	Assist
3.	Case History- 7 cases	Perform
4.	Indices – 1 case each	Observe
5.	Indices – 21 cases	Perform
6.	Pit and Fissure sealant application- 1 case	Observe/Assist

7.	Pit and fissure sealant application- cases	Perform
8.	Topical fluoride application- 1 case	Observe
9.	Topical fluoride application- 2 cases	Perform
10.	Atraumatic Restorative Treatment – 1 case	Observe/Assist
11.	Atraumatic Restorative Treatment – 1 case	Perform
12.	Oral screening camp - 3 Oral health education talk	Observe / Assist
13.	Outreach activities - Treatment camps Oral prophylaxis - 20 cases	Perform

**Early Clinical Exposure**

Sl.No	Topic	Speciality integrating
1	Dental caries – Prevention	Cons & Endo
2	Plaque control, prevention of periodontal diseases	Periodontics
3.	Oral cancer screening and prevention	Oral medicine, oral pathology
4.	Child psychology & behavioral sciences	Pediatric and Preventive Dentistry and preventive dentistry
5.	Fluorides application	Pediatric and Preventive Dentistry and preventive dentistry

**Environmental Sciences as per UGC**

UNIT	TOPICS	SYSTEM WEIGHTAGE
<b>UNIT 1</b> <b>Multi disciplinary nature of environmental studies</b> <b>I year</b>	Definition, scope and importance, need for public awareness	5 % (five)
<b>UNIT 2</b> <b>Natural Resources</b> <b>I year</b>	> Forest, Water, food and land resources > Sustainable development	5 % (five)

<b>UNIT 3</b> <b>Ecosystems</b> <b>II year</b>	<ul style="list-style-type: none"> <li>➤ Concept of ecosystem</li> <li>➤ Structure and function of an ecosystem</li> <li>➤ Producers, consumers and decomposers</li> <li>➤ Energy flow in the ecosystem</li> <li>➤ Ecological succession</li> <li>➤ Food chains, food webs and ecological pyramids</li> <li>➤ Introduction, types, characteristic features, structure and function of the following systems               <ul style="list-style-type: none"> <li>a. Forest ecosystem</li> <li>b. Grassland ecosystem</li> <li>c. Desert ecosystem</li> <li>d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)</li> </ul> </li> </ul>	<b>10 % (ten)</b>
<b>UNIT 4</b> <b>Biodiversity and its conservation</b> <b>I year</b>	<ul style="list-style-type: none"> <li>➤ Introduction– Definition: genetic, species and ecosystem diversity</li> <li>➤ Bio geographical classification of India</li> <li>➤ Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values</li> <li>➤ Biodiversity at global, national and local levels</li> <li>➤ India as a mega - diversity nation</li> <li>➤ Hot-spots of Biodiversity</li> <li>➤ Threats to biodiversity: habitat loss, poaching of wild life, man-wildlife conflicts</li> <li>➤ Endangered, endemic species of India</li> <li>➤ Conservation of biodiversity: In-situ and Ex-situ</li> </ul>	<b>15 % (fifteen)</b>
<b>UNIT 5</b> <b>Environmental pollution</b> <b>II year</b>	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Cause, effects and control measures:               <ul style="list-style-type: none"> <li>a. Air pollution</li> <li>b. Water pollution (sources, water, purification)</li> <li>c. Soil pollution</li> <li>d. Noise pollution</li> <li>e. Thermal pollution</li> <li>f. Nuclear hazards</li> </ul> </li> <li>➤ Solid waste management: Causes, effects and control measures of urban and industrial wastes</li> <li>➤ Role of an individual in prevention of pollution</li> <li>➤ Pollution case studies</li> <li>➤ Disaster management: floods, earthquake, cyclone and landslides</li> </ul>	<b>20% (twenty)</b>

<b>UNIT 6</b> <b>Social issues</b> <b>and the</b> <b>environment</b> <b>II year</b>	Environment protection act ➤ Air (Prevention and control of pollution) Act ➤ Water (Prevention and control of pollution) Act ➤ Public awareness	5 % (five)
<b>UNIT 7</b> <b>Human</b> <b>population</b> <b>and the</b> <b>environment</b> <b>II year</b>	➤ HIV & AIDS	5 %(five)
<b>UNIT 8</b> <b>Field Work II</b> <b>year</b>	Field visit ➤ Visit to biomedical waste management plant ➤ Visit to water purification plant ➤ Visit to sewage treatment plant	25% (twenty five)

**Scheme of Examination****1. Theory: 70 Marks**

Part I : 20 MCQs (20 X 0.5 = 10 Marks)

Part II :

Section A: 1 LAQ (1 X 10 = 10 Marks)

3 SAQs (3 X 5 = 15 Marks)

Section B: 1 LAQ (1 X 10 = 10 Marks)

3 SAQs (3 X 5 = 15 Marks)

Section C: 5 VSAQs (5 X 2 = 10 Marks)

**Theory Internal assessment: 10 marks****Viva voce: 20 marks****Total = 100 Marks****2. Practical examination: 90 Marks****Practical Internal Assessment – 10 Marks****Total – 100 Marks****Blue print of the question paper**

➤ Section A : Public Health (25 marks)

➤ Section B : Public Health Dentistry and Preventive Dentistry (25 marks)

The questions can be distributed as follows :

➤ 70 % from the Must know areas

➤ 20 % from Desirable to know areas

➤ 10 % from Nice to know areas

## SECTION A

If LAQ is from Concept of Health and Disease					
Topic	LAQ (1X10)	SAQ (3X5)	VSAQ (2X3)	MCQs (8x0.5)	MARKS
Concept of Health and Disease and Concept of Prevention	1				10
International and National Public Health			1		2
General Epidemiology - Basic Measurements, Methods, Sampling, Bias		1	1		7
Planning and Evaluation			1		2
Biostatistics		1			5
Health Education		1			5
Environment and Health					
Waste Disposal				4	2
Behavioral Sciences				4	2

If LAQ is from Health Education					
Topic	LAQ (1X10)	SAQ (3X5)	VSAQ (2X3)	MCQs (8x0.5)	MARKS
Concept of Health and Disease and Concept of Prevention		1			5
International and National Public Health			1		2
General Epidemiology - Basic Measurements, Methods, Sampling, Bias		1	1		7
Planning and Evaluation			1		2
Biostatistics		1			5
Health Education	1				10
Environment and Health					
Waste Disposal				4	2
Behavioral Sciences				4	2

## SECTION - B

If LAQ is from Epidemiology of Oral Diseases					
Topic	LAQ (1X10)	SAQ (3X5)	VSAQ (2X2)	MCQs (12x0.5)	MARKS
Epidemiology of Oral Diseases	1				10
Preventive Dentistry		1			5



School dental Health Programs		1			5
Indices of Dental Diseases		1			5
Oral Health Survey		1			5
Fluorides in Dentistry			1	4	4
DCI and IDA COPRA				4	2
Dental Manpower & Finance in Dentistry			1	4	4

If LAQ is from Dental Manpower					
Topic	LAQ (1X10)	SAQ (3X5)	VSAQ (2X2)	MCQ <sub>5</sub> (12x0.5)	MARKS
Epidemiology of Oral Diseases			1	4	4
Preventive Dentistry		1			5
School dental Health Programs		1			5
Indices of Dental Diseases					2
Oral Health Survey				4	2
Fluorides in Dentistry		1	1		7
DCI and IDA					
COPRA				4	2
Dental Manpower & Finance in Dentistry	1				10

**Blueprint for Practical examination:**

Practical exam - 90 marks

*Case presentation with indices / clinical procedures: 40 marks*

*OSCE/OSPE: 50 marks (10 stations x 5 marks each= 50 marks)*

**Public Health – 20 marks**

- Observation of functioning of health infrastructure.
- Observation of functioning of health care team including multipurpose worker male and female, health educators and other workers.
- Observation of at least one National Health Programme:
- Observation of interlink ages of delivery of oral health care with primary Health care. Mobile dental clinics, as and when available, should be provided for this teachings.

**Dental Public Health – 40 marks**

Conduction of oral health education programmes at School setting - 2

- a) Community setting - 2
- b) Adult education programmes - 2 5.
- c) Preparation of Health Education materials

### **Preventive Dentistry – 30 marks**

They shall arrange effective demonstration of:

- a) Preventive and interceptive procedure for prevalent dental diseases.
- b) Mouth-rinsing and other oral hygiene demonstrations - 5 cases
- c) Tooth brushing techniques - 5 cases

### **Public Health Dentistry OSCE blueprint**

Topic	No. of stations	Communication	Examination	Procedure
<b>Public Health</b> 1. National Health program 2. Primary health care 3. Health care system	3-4	Yes Yes	Yes	
<b>Dental Public Health</b> 1. Treatment plan 2. Indices 3. Health education	2 (Hybrid station)	Yes	Yes Yes	
<b>Preventive dentistry</b> 1. Plaque control 2. Tobacco cessation 3. Preventive procedure	3-4	Yes Yes		Yes
<b>Total</b>	<b>8-10</b>			

### **Model stations**

#### **Public Health – 20 marks**

- Educating an Anganwadi worker - Simulated patient - observed station (10 marks)
- National Health program – response station (5 marks)
- Health care delivery system – scenario – response station (5 marks)

#### **Dental Public Health – 40 marks**

- Short Case history + indices - hybrid station - 40 marks

#### **Preventive dentistry – 30 marks**

- Brushing demonstration – 5 marks
- Pit and fissure sealant / Fluoride application - 20 marks
- Tobacco cessation counseling for Simulated patient - observed station - 5 marks

**Recommended books**

1. Dentistry Dental Practice and Community by David F. Striffler and Brain A. Burt, Edn. –1983, W. B. Saunders Company
2. Principles of Dental Public Health by James Morse Dunning, IV Edition, 1986, Harvard University Press.
3. Dental Public Health and Community Dentistry Ed by Anthony Jong Publication by The C.V. Mosby Company 1981
4. Community Oral Health-A system approach by Patricia P. Cormier and Joyce I. Levy published by Appleton-Century-Crofts/ New York, 1981
5. Community Dentistry-A problem-oriented approach by P. C. Dental Hand book series Vol.8 by Stephen L. Silverman and Ames F. Tryon, Series editor-Alvin F. Gardner, PSG Publishing company Inc. Littleton Massachusetts, 1980.
6. Dental Public Health- An Introduction to Community Dentistry. Edition by Geoffrey L. Slack and Brain Burt, Published by John Wright and sons Bristol, 1980
7. Oral Health Surveys- Basic Methods, 4th edition, 1997, published by W. H. O. Geneva available at the regional office New Delhi.
8. Preventive Medicine and Hygiene-By Maxcy and Rosenau, published by Appleton Century Crofts, 1986.
9. Preventive Dentistry-by J. O. Forrest published by John Wright and sons Bristol, 1980.
10. Preventive Dentistry by Murray, 1997.
11. Text Book of Preventive and Social Medicine by Park and park, 14th edition.
12. Community Dentistry by Dr. Soben Peter.
13. Introduction to Bio-statistics by B. K. Mahajan
14. Research methodology and Bio-statistics by
15. Introduction to Statistical Methods by Grewal

**MODEL QUESTION PAPER**  
**IV BDS EXAMINATION**  
**PUBLIC HEALTH DENTISTRY**

**Time: 3 hours****Max Marks 70**

**PART - I**

**MODEL MULTIPLE CHOICE QUESTIONS:****20X0.5=10**

1. Permanent hearing loss may result due to repeated or continuous exposure to noise around,  
A. 100 DB  
B. 50 – 60 DB  
C. 60 – 80 DB  
D. 75 DB
2. Where the terrain is moderately sloping the type of controlled tipping chosen is,  
A. Trench method  
B. Ramp Method  
C. Area method  
D. Dumping
3. Hospital refuse is best disposed of by,  
A. Incineration  
B. Controlled tipping  
C. Composting  
D. Burial
4. Dentist act of India was enacted in,  
A. 1949  
B. 1950  
C. 1948  
D. 1947
5. Tools of dental public health are,  
A. Epidemiology, biostatistics and social sciences  
B. Principles of administration and preventive dentistry  
C. All of the above  
D. None of the above
6. Most caries susceptible teeth are  
A. 1st Permanent Molars  
B. 1st Primary Molars  
C. 2nd Premolars  
D. 2nd Permanent Molars
7. As temperature increases dental caries  
A. Increase  
B. Decreased  
C. Remains same  
D. None of the above
8. Which of the following are W.H.O recommended index ages and age groups?  
A. 4, 12, 15, 35-44 & 65-74  
B. 5, 12, 15, 35-44 & 65-74  
C. 8, 12, 16, 35-44 & 65-74  
D. 12, 15, 18, 25-35 & 55-64
9. Calibration is  
A. Method to achieve intra and inter examiners consistency  
B. It's a procedure in bio-statistics  
C. Training of examiners  
D. All of the above
10. Texas state wide preventive dentistry program is also known as  
A. Sharp Program  
B. Tattle tooth program  
C. Askov Dental demonstration  
D. Incremental dental care

11. Treating dental defects as they occur and not waiting until needs built up is called
  - A. Comprehensive dental care
  - B. Incremental dentalcare
  - C. Essential care
  - D. Initial care
12. In India most common mechanism of payments towards dental treatment is,
  - A. Fee for service
  - B. Pre-payment
  - C. Post Payment
  - D. All of the above
13. The portion of the cost of dental service that patients pay is called,
  - A. Deductible
  - B. Budgeting
  - C. UCR fee
  - D. Fee schedule
14. Advantages of group practice,
  - A. All family members can undergo for dental treatment simultaneously
  - B. Dentist can take leave
  - C. No problem of shortage of equipments and auxiliaries
  - D. All of the above
15. One of the following is not an ethical principal,
  - A. To do no harm
  - B. To do good
  - C. Non-beneficence
  - D. Non- malficence
16. Most easily avoidable malpractice case is,
  - A. Case involving incomplete treatment
  - B. Case involving broken instrument
  - C. Case involving failure to sterilize
  - D. None of the above
17. Head office of Indian dental association is situated at,
  - A. Delhi
  - B. Mumbai
  - C. Coimbatore
  - D. Calcutta
18. The President of Dental council of India can hold tenure of office for,
  - A. 5 Years
  - B. 3 Years
  - C. 7 Years
  - D. None of the above
19. World No Tobacco day is observed on
  - A. 1st July
  - B. 31st May
  - C. 1st December
  - D. 11th December
20. Most common etiology of oral cancer in India is,
  - A. Smokeless tobacco
  - B. Smoking tobacco
  - C. Alcohol
  - D. All of the above

**PART II**  
**SECTION A [PUBLIC HEALTH]**

**LONG ANSWER QUESTION:** **1X10 = 10**

1. Define Health? Enumerate and explain the Indicators of Health

**SHORT ANSWER QUESTIONS:** **3X5 = 15**

2. What are various used of epidemiology?
3. Enumerate and Explain the Measures of Central Tendency
4. What are all the audio visual aids used in Health Education

**SECTION - B [PUBLIC HEALTH DENTISTRY AND PREVENTIVE DENTISTRY]**

**LONG ANSWER QUESTION:** **1X10 = 10**

5. Write in Detail about Etiology, Epidemiology and Prevention of Periodontal Disease

**SHORT ANSWER QUESTIONS:** **3X5 = 15**

6. Explain preventive resin restoration
7. Write in detail about Silness & Loe Plaque Index
8. What is Tattle tooth School Oral health Program

**SECTION- C**

**VERY SHORT QUESTION:** **5X2 =10**

9. Explain Quarantine in public health
10. What is Bimodality?
11. What are all the resources consider in planning?
12. Explain School water fluoridation
13. What is Usual Customary and reasonable fee?

# **INTEGRATED TEACHING MODULES**

## **DENTAL ARMAMENTARIUM AND USAGE**

### **COMPETENCY**

At the end of these integrated modules the BDS student will be able to identify and use the instrumentations required for dental practice appropriately and effectively.

### **MODULE 1 – First year BDS**

#### **Objective:**

- Identify various instruments used for restoration and replacement of teeth.
- Apply the principles of instrumentation for effective use of instruments
- Appropriately use the instruments for restoration and replacement of teeth.

#### **Departments involved:**

- Conservative dentistry, Prosthodontics, crown & bridge

#### **Teaching methods:**

- Large group - Lectures
- Small group - Practical sessions & Chair side teaching - Discussions & Demonstrations

#### **Evaluation:**

- OSCE, Practical examination

### **MODULE 2 – Third year BDS**

#### **Objectives**

At the end of the module the student will be able to

- Identify various instruments used for scaling & root planing, extraction and endodontic procedures
- Apply the principles of instrumentation for effective use of instruments
- Appropriately use the instruments for scaling & root planing, extraction and endodontic procedures.

#### **Departments involved:**

- Periodontology, Oral & maxillofacial surgery, Conservative dentistry & Endodontics and Paediatric & preventive dentistry

#### **Teaching methods:**

- Large group – Lectures
- Small group – Practical sessions & Chair side teaching - Discussions & Demonstrations

#### **Evaluation:**

- OSCE, Practical examination



## STERILIZATION AND DISINFECTION

### **COMPETENCY**

At the end of the 2nd yr BDS the student should understand the rationale of practical infection control and should be able to practice effective sterilization and disinfection protocols in patient care.

### **Learning Objectives:**

1. Define key terminologies related to infection control
2. List the transmissible diseases of concern to dental healthcare providers
3. Explain the modes of microbial transmission
4. Explain and practice various methods of sterilization & disinfection
5. Classify patient care items as related to sterilization and disinfection.
6. Describe and practice proper cleaning, packaging & storage of instruments.
7. Explain about monitoring of sterilization
8. Explain and apply sterilization & disinfection protocol for various instruments and materials used in Dentistry.
  - Dental chair unit
  - Radiography
  - Orthodontic instruments
  - Restoring & Endodontics instruments and materials
  - Surgical instruments
  - Laboratory materials
9. Explain and apply universal precautions in patient care
10. Perform proper hand hygiene
11. Explain and apply barrier techniques during patient care
12. Explain immunization for Dental Healthcare Professionals.
13. Explain and apply Biomedical & Biodental Waste Management rules in Dental clinic

### **Departments Involved:**

- Microbiology
- Oral Medicine
- Oral Surgery
- Conservative Dentistry and Endodontics
- Prosthodontics
- Public Health Dentistry
- Orthodontics

### **TL Method:**

- Lecture (Large group teaching)
- Small group teaching with demonstrations in the sterilization area and chairside demonstration for Dental equipments and materials)

### **Evaluation:**

- Written - SAQ, VSAQ, MCQs
- Practicals - OSCE/OSPE
- Structured Viva

## BEHAVIORAL SCIENCES

### Competency

At the end of the BDS integrated module on behavioural sciences, the graduate should be able to develop skills of assessing psychological factors in each patient, explaining stress, learning simple counselling technique and improving patients compliance behaviour. Also, the training in behavioural sciences shall prepare the students to deliver preventive, promotive, curative and rehabilitative services to the care of the patients both in family and community and refer advanced cases to specialised psychiatric hospitals.

### Objectives

At the end of the course, the student shall be able to

1. Comprehend different aspects of normal behaviour like learning, memory, motivation, personality and intelligence.
2. Recognise difference between normal and abnormal behaviour
3. Classify psychiatric disorders in dentistry
4. Recognise clinical manifestations of dental phobia, dental anxiety, facial pain, orofacial manifestations of psychiatric disorders and behavioural problems in children. Addictive disorders, psychological disorders in various dental departments
5. Have understanding of stress in dentistry and knowledge of simple counselling techniques.
6. Have some background knowledge of interpersonal, managerial and problem solving skills which are an integral part of modern dental practice.
7. Have knowledge of social context of dental care.

### B. Skills

The student shall be able to

1. Interview the patient and understand different methods of communication skills in dentist-patient relationship.
2. Improve patient compliance behaviour
3. Develop better interpersonal, managerial and problem solving skills
4. Diagnose and manage minor psychological problems while treating dental patients.

### Module 1 – 1st year

#### Psychology-I Basics of behavioural sciences

Integrating departments: Oral Medicine, Public Health Dentistry, Pediatric and Preventive Dentistry, Physiology, psychology

#### Portions to be covered

1. Definition and need of behavioural science.
2. Determinants of behaviour & Scope of behavioural science
3. Sensory process and perception perceptual process-clinical applications
4. Attention-definition-factors that determine attention. Clinical application
5. Memory-memory process-Types of memory, methods to improve memory, clinical assessment of memory and clinical applications

**Teaching – learning methods**

Large group: lecture, team teaching

**Evaluation:** Short answer, MCQs

**Module 2: 2nd year**

**Psychology-II Learning process and intelligence.**

Integrating departments: Public Health Dentistry, psychology- Student counselor, biochemistry

**Portions to be covered**

1. Definition-Laws of learning  
Type of learning, Classical conditioning, operant conditioning, cognitive learning, Insight learning, social learning, observational learning, principles of learning-clinical application.
2. Intelligence-Definition: Nature of intelligence, stability of intelligence, determinants of intelligence, clinical application

**Module 3 – 3rd year**

**Psychology – III Motivation, emotions and personality assessment**

Integrating departments: Oral Medicine, Public Health Dentistry, Pediatric and Preventive Dentistry, psychology

**Portions to be covered**

1. Thinking-Definition: Types of thinking, delusions, problem solving
2. Motivation- Definition: Motive, drive, needs classification of motives
3. Emotions-Definition differentiation from feelings-role of hypothalamus, cerebral cortex, adrenal glands ANS. Theories of emotion, Types of emotions.
4. Personality –Assessment of personality: Questionnaires, personality inventory, rating scales, Interview projective techniques-Rorschach ink blot test, RAT, CAT

**Teaching – learning methods**

Large group: lecture, Small group teaching with practical session – patient history and assessment

**Evaluation:** Short answer, MCQs, OSCE

#### **Module 4- Final year**

##### **Sociology**

Integrating departments: Public health dentistry, psychology

##### **Portions to be covered**

1. Social class, social groups-family
2. Types of family, and types of marriages,
3. Types of communities

##### **Teaching – learning methods:**

Large group: lecture , Small group teaching- in camps, field visit

**Evaluation methods:** OSCE/ OSPE, WPBA- evaluation during field visit

##### **Reference books :**

General Psychology - S.K.Mangal

General Psychology –Hans Raj, Bhatia

General Psychology – Munn

Behavioural Sciences in Medical practise- Manju Mehta

Sciences Basic to Psychiatry – Basanth Puri & Peter J Tyrer

## **ETHICS**

### **Introduction**

There is a definite shift now from the traditional patient and doctor relationship and delivery of dental care. With advances in science and technology and the increasing needs of the patient, their families and community, there is a concern for the health of the community as a whole. There is a shift to greater accountability to the society. Dental specialists like other health professionals are confronted with many ethical problems. It is therefore absolutely necessary for each and every one in health care delivery to prepare them to deal with these problems.

### **Objective**

To develop human values among students for effective patient care and to make it a habit for lifelong practice.

The students will undergo ethical practice training by lecture, flipped Class, team teaching, group discussions, buzz discussion and clinical case discussion on ethical component.

### **Portions to be covered**

#### **Module 1: Introduction to ethics:**

- What is ethics?
- What are values and norms?
- How to form a value system in one's personal and professional life?
- Hippocratic oath
- Declaration of Helsinki, WHO declaration of Geneva, International code of ethics, DCI code of ethics.

#### **Module 2: Ethics of the individual -**

The patient as a person  
Right to be respected  
  
Truth and confidentiality  
Autonomy of decision  
Doctor Patient relationship

#### **Module 3: Professional Ethics-**

Code of conduct  
Contract and confidentiality  
Charging of fees, fee splitting  
Prescription of drugs  
Over-investigating the patient  
Malpractice and negligence

#### **Module 4: Research Ethics-**

Animal and experimental research/ humanness  
Human experimentation  
Human volunteer research-informed consent  
Drug trials

**Syllabus****Module 1: Introduction to ethics: (Second year)****Integrating departments: Public Health Dentistry & Oral medicine****Objectives:**

At the end of second year BDS the student should be able to appreciate

1. What is ethics?
2. What are values and norms?
3. How to form a value system in one's personal and professional life?
4. What is Hippocratic oath
5. What is Declaration of Helsinki, WHO declaration of Geneva, International code of ethics, DCI code of ethics.

**Teaching – learning methods:**

- Large groups - lecture, flipped Class, team teaching
- Small groups - group discussions, buzz discussion

**Evaluation:** MCQ, OSCE**Module 2: Ethics of the individual (third year)****Integrating departments: Oral Medicine, Public Health Dentistry & Prosthodontia****Objectives:**

At the end of third year BDS, the student should be able to appreciate

1. How to respect the patient as a person
2. What are the right of the patient to be respected
3. How is be Truthful and maintain confidentiality
4. How to maintain the Autonomy of decision making with patients
5. Types of Doctor Patient relationship

**Teaching – learning methods**

- Large group- lecture, flipped class, team teaching
- Small group – chairside teaching, group discussion

**Evaluation:** Short answer, MCQ, OSCE.

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### **Module 3: Professional Ethics- (Fourth year)**

**Integrating Department:** Public Health Dentistry, Conservative Dentistry, Oral Medicine, Prosthodontia & Oral Surgery

#### **Objectives:**

At the end of fourth year BDS, the student will be able to appreciate.

1. What are the dentist Code of conduct
2. How to maintain the Contract with the patient and maintain confidentiality
3. How to Charge the fees and fee splitting
4. Ethical Prescription of drugs
5. How to avoid or restrict over –investigating the patient

#### **Ethics**

6. How to avoid Malpractice and medical negligence

#### **Teaching – learning methods**

- Large groups- lecture, flipped class, team teaching.
- Small groups – chair side teaching, role play, group discussion,

**Evaluation:** Short answer, MCQ, OSCE

### **Module 4: Research Ethics - (Internship)**

**Integrating Department:** PHD, Conservative Dentistry, OMR, Oral Surgery, Oral pathology & Research Committee

#### **Objectives:**

At the end of Internship BDS, the student will be able to appreciate.

1. Types of Animal and experimental research/ humanness
2. How to do a ethical human experiment
3. How to recruit Human volunteer for research and get informed consent.
4. How to do a ethical drug trials

#### **Teaching – learning methods**

- Small groups – Group Discussion, Chair side teaching, role play

**Evaluation:** OSCE

#### **Recommended Reading:**

Medical Ethics, Francis.C.M., 1 Ed. 1993, Jaypee Brothers, New Delhi, p.189

## CARIOLOGY

### Competency

At the end of the BDS integrated module on Cariology, the graduate should have a knowledge of the basic sciences behind causes, etiopathogenesis, classification, diagnosis and treatment plan; possess the knowledge & skill of identification of dental caries disease and institute preventive and operative management of DC based on caries risk assessment; acquire the professional attitude and communication skill to counsel the patient on their participation in caries prevention.

### Portions to be covered

#### Module 1 Second year

- Definition
- Causes
- Theories of caries
- Pathogenesis (remin –demin cycle)
- Prevalence

#### Module 2 Third year

- Clinical presentation
- Classification
- Clinical
- Radiological
- Histopathological
- Diagnosis

#### Module 3 Final year

- Treatment decision
- Prevention
- primary
- secondary
- tertiary
- operative treatment
- recent advancement

### Syllabus

#### Module 1: Foundation Science In Cariology (second year)

**Integrating departments: Cons, Pedo, Oral path, PHD**

#### Objectives :

At the end of second year BDS the student should be able to

1. Define DC
2. Define early childhood caries
3. List the causes of caries
4. Explain the interaction of causative factors with the focus on remin- demin cycle
5. Enlist and explain the theories of dental caries etiopathogenesis
6. Discuss the incidence and prevalence of DC nationally and globally



**Teaching – learning methods:**

- Large groups - lecture, flipped Class, team teaching
- Small groups - group discussions, buzz discussion
- Early clinical exposure - observation of clinical presentation of dental caries

**Evaluation**

MCQ, OSPE

**Module 2: Diagnosis and Detection (third year)**

**Integrating departments: Oral path, Cons, Pedo, OMR, PHD**

**Objectives :**

At the end of third year BDS, the student should be able to

1. Diagnose dental caries disease by using risk assessment tool (K,S,A)
2. Detect carious lesions using ICDAS/ICCMS coding system and differentiate from non- carious (K,S)
3. Comprehend the clinical presentation of cavitated lesion (K, S)
4. Classify the lesion using traditional and novel methods. (K)
5. Classify DC radiographically and histopathologically. (K, S)

**Teaching – learning methods**

- Large group- lecture, flipped class, team teaching
- Small group – chairside teaching, group discussion (can choose additional appropriate teaching learning methods)

**Evaluation**

Long answer, short answer, MCQ, OSCE.

**Module 3: Caries management and prevention (Fourth year)**

**Integrating Department: OMR, Cons, Pedo, PHD**

**Objectives :**

At the end of fourth year BDS, the student will be able to

1. Devise the caries management based on risk assessment (K)
2. Counsel the patient on dietary habits and oral hygiene practices for caries prevention (K, A)
3. Institute preventive measures at lesion level and disease level (K, S)
4. Institute restorative management by using various restorative materials adopting the principals of minimal invasive dentistry (MID)
5. Provides evidence based knowledge on current concepts in cariology (K)

**Teaching – learning methods**

- Large groups- lecture, flipped class, team teaching.
- Small groups – chair side teaching, role play, group discussion, additional appropriate teaching method

**Evaluation**

Theory and practical exams

## **PULPO - PERIAPICAL LESIONS**

### **Competency:**

At the end of the BDS integrated module on pulpo periapical lesions, the graduate will have a knowledge on the anatomy of pulp and periapical area, pathology of pulp and periapical region, classification of pulpo-periapical diseases, be able to diagnose and plan an appropriate treatment for lesions involving pulp and periodontium

### **Integrating departments:**

1. Cons and Endo
2. Periodontology
3. Oral medicine and radiology
4. Oral pathology and microbiology
5. Oral and maxillofacial surgery

### **Objectives:**

At the end of the third year BDS , the student will be able to:

1. Describe pulpal and periapical anatomy
2. Distinguish health and diseases states of pulpo periapical complex
3. List the pathways of communication between pulp and periodontium and explain the interrelationship between both tissues
4. Interpret radiological changes in the pulpo –peri apical complex
5. Histopathological investigations
6. Classify end-perio lesions
7. Describe the clinical features and management of all endo-perio lesions

### **Teaching learning methods:**

Large group: lecture, team teaching  
Small group: group discussions, buzz sessions

### **Evaluation:**

Long answers, Short answers, Very short answer questions, MCQs, OSCE

## DIAGNOSIS & TREATMENT PLANNING

### Skills List

1. Awareness of the common disease\* burden of the Indian population more specific to locality with reference to lifestyle, occupation and habits Caries, periodontal diseases, oral mucosal lesions, temporomandibular joint, salivary gland disorders, oral manifestation of systemic diseases
2. Ability to diagnose common\*\* diseases and/or conditions\* of the oral cavity and related maxillofacial structure

\*Caries, periodontal diseases, oral mucosal lesions, temporomandibular joint, salivary gland disorders, oral manifestation of systemic diseases,

Subskill: 2a Ability to develop rapport with the patient and elicit [dental and medical] history of the patient

Subskill: 2b Ability to perform a systematic [local and general] examination of the patient and record the findings meticulously and arrive at a clinical diagnosis.

Subskill: 2b ability to choose appropriate investigation/diagnostic aid and arrive at a confirmatory diagnosis by correlating with the clinical diagnostic features

3. Ability to prescribe medications [prescription writing] as indicated and appropriate referral [using referral form] for specialty [medical/dental] opinion and care.

**OBJECTIVES/INTENDED LEARNING OUTCOMES:** These statements can be converted to key areas of assessment in theory [written examination] or practicals [Objective Structured Clinical Examination]

### At the end of the course the student would be able to

1. Explain the influence of lifestyle, occupation and habits of the local/Indian population on the emergence of common diseases\* of the oral cavity, head and neck and also oral manifestation of systemic diseases

\* Caries, periodontal diseases, oral mucosal lesions, temporomandibular joint, salivary gland disorders, oral manifestation of systemic diseases

2. Explain the incidence and prevalence of common diseases and conditions\*\* of oral cavity and related maxillofacial structures

\*\*Caries, periodontal diseases, oral mucosal lesions, temporomandibular joint, salivary gland disorders, oral manifestation of systemic diseases

3. List the clinical features of Caries, periodontal diseases, oral mucosal lesions, temporomandibular joint, salivary gland disorders, oral manifestation of systemic diseases,
4. Prescribe appropriate investigations for various lesions mentioned above
5. Arrive at a diagnosis based on the clinical features and investigation results by correct interpretation.
6. Able to prescribe medications for the above said diseases or conditions.

7. Able to write a referral form to a dental / medical specialist concerned with the disease condition.

**Departments involved**

1. Oral Medicine and Radiology
2. Oral Pathology
3. Periodontics
4. Prosthodontics
5. Pediatric and Preventive Dentistry
6. Orthodontics
7. Oral Surgery
8. Public Health Dentistry
9. Conservative Dentistry & Endodontics

**Training from I year to IV year**

**Early Clinical Exposure - I year**

**Portions covered:** Disease burden of local population

**Teaching Learning Activity: "HEART" Programme**

9 days training programme with Public Health dentistry and Community Medicine Department. The student undergo joint learning activity with medical students and guided by faculty.

3 days – Theoretic background before field visit

3 days – field visit to local villages. Demographic variables. Hygiene status and disease burden of local population, Any new disease outbreak.

3 days – Compilation of report individually and submission

**Evaluation**

Report generation immediately using graphics and other pictorial representation every day.

**Early Clinical Exposure – II year**

Rotational postings in various departments and Comprehensive Care Clinic and Observation

Appreciate diversity and awareness of presentation of cases specialty wise.

**Evaluation**

Immediate Report generation based on the observations and submission

**Clinical [III year and IV year]**

**Portions covered**

1. Developing patient dentist relationship, Case History [Adult, Child, Geriatric needs]
2. Caries Diagnosis with ICIDAS and Salivary buffer test – with caries module
3. Periodontal Charting – Identification and diagnosis using investigations

4. Tooth wear – identification of disease type and pathology
5. Tooth stains – Intrinsic and Extrinsic – identification and Pathology
6. Pain cases [pain due to pulpal, periodontal or pain in head and neck] and 3 special cases – red and white, salivary glands, precancerous and cancerous lesions
7. Malocclusion and related problems –Identification, Model analysis and ability to interpret cephalometric findings to arrive at diagnosis.
8. Identification of red, white, precancerous lesions, salivary gland pathology with appropriate diagnostic aids
9. Identifying need for biopsy, smear or vital staining and to interpret results
10. TMJ examination on standardised patients
11. Identification of special needs of a child and identification of need for intervention and prevention of dental and/or oral diseases or conditions
12. Epidemiology of oral diseases and other oral manifestation of systemic diseases Lifestyle, occupation and habit influence. Disease covered - Caries, periodontal diseases, oral mucosal lesions, temporomandibular joint, salivary gland disorders, oral manifestation of systemic diseases, TMJ problems, red and white lesions, precancerous, cancerous, malocclusions, stains, tooth wear, pain

### Teaching Learning Activity

**Theoretical Training:** Integrated Classes with departments involved in above mentioned 13 areas.

**Evaluation:** Written Examination

**Practical Training:** Skill based Training of the above mentioned including professionalism, communication and other soft skills pertaining to diagnosis.

**Evaluation:** Objective Structured Clinical Examination – Formative and Summative

**Internship:** Refer SCORE programme. All the above mentioned are assessed using Work Place Based assessment Tools in their posting in departments and also in comprehensive clinics.

## AESTHETIC DENTISTRY

### Competency

At the end of the BDS integrated module on aesthetic dentistry, the graduate should have a knowledge, the science behind aesthetics and allow them to utilize materials that are both durable and esthetically pleasing. Ability to gain the skills in Aesthetic Dentistry in blending both art and science into smiles that are healthy and beautiful. To deal with the esthetic materials which match close resemblance to the look and feel of your original teeth, giving a natural appearance of your teeth and smile that enhance one's oral appearance.

### Intergrating Departments - Conservative Dentistry and Endodontics, Periodontics and Prosthodontics

#### Portions to be covered

#### Module 1 : second year

Alignment of teeth  
Contacts and contours  
Occlusion  
Material aspect of esthetic dentistry

#### Module 2 third year

Tooth preparation for light cure composite resin restoration and GIC  
Tooth preparation for ceramic restoration  
Gingiva normal anatomy and contour

#### Module 3 final year

Aesthetic dentistry- treatment planning and management  
Pink esthetics in gingiva

### Syllabus

#### Module 1 : Foundation of Aesthetics (second year)

#### Integrating departments : Prosthodontics, Cons

#### Objectives :

At the end of second year BDS, the student should be able to

1. To know the correct alignment of teeth of maxilla and mandible
2. To know the ideal contacts and contours and different types of contacts and contours
3. Know the ideal occlusion and types of occlusion
4. Material aspect – light cure resin composite material –

Composition, classification, setting reaction, advantages and disadvantages  
Glass ionomer cements – composition, setting reaction classification, advantages, disadvantages  
Ceramics -composition, classification, setting reaction.

**Teaching – learning methods**

Large group- lecture, flipped class

Small group – Demo of manipulation of the material on an extracted tooth in the preclinical hours.

**Evaluation**

Long answer, short answer, MCQ, OSCE.

**Module 2 : Restoration for aesthetic material (third year)**

**Integrating Department : Cons,Perio,Prosthodontics**

**Objectives :**

At the end of third year BDS, the student will be able to

1. To know the various designs and tooth preparation in anteriors and posteriors for the aesthetic restorative materials (K,S)
2. To know the normal colour, contour and characteristics of gingiva(K)
3. To know the histology, vascular supply, nerve supply of gingiva(K)
4. To know the attachment of gingiva(K)
5. To evaluate clinically the gingiva (S)

**Teaching – learning methods**

Large groups- lecture,

Small groups – chair side teaching, models

**Evaluation**

Theory and practical exams

**Module 3 : Aesthetic management (fourth year)**

**Integrating Department : Cons, Perio, Prosthodontics**

**Objectives:**

At the end of fourth year BDS, the student will be able to

1. To know how to use the shade guide and to establish proper shade selection with relation to different parts of tooth. (S)
2. to know how to do smile designing by conventional and digital method (K,S)
3. To know various technique in placement of direct aesthetic material.(K,S)
4. To know the fabrication of indirect esthetic restorative material.
5. To know the surgical means of correcting the gingival esthetics. (K,A,S)

**Teaching – learning methods**

Large groups- lecture, demonstration

Small groups – chair side teaching,

**Evaluation**

Theory, OSCE, Practical examinations

**Recommended Books :**

Esthetic guidelines for restorative Dentistry; Scharer & others

Esthetics of anterior fixed prosthodontics. Chiche (GJ) & Pinault (Alain)

Esthetics & the treatment of facial form, Vol 28; Mc Namara (JA)



## **FORENSIC ODONTOLOGY**

### **COMPETENCY**

At the end of the teaching program the dental graduate should be able to:

1. Sound knowledge of the theoretical and practical aspects of forensic odontology
2. Awareness of ethical obligations and legal responsibilities in routine practice and forensic casework.
3. Capable of recognising forensic cases with dental applications when consulted by the police, forensic pathologists, lawyers and associated professionals.
4. Proficient in proper collection of dental evidence related to cases of identification, ethnic and sex differentiation, age estimation and bite marks
5. Ability to assist in analysis, evaluation, and presentation of dental facts within the realm of law.

### **Portions to be covered**

#### **Module 1 (Third year)**

1. Introduction, definition, aims & scope (must know)
2. Sex and ethnic differences in tooth morphology and histological age estimation (must know)
3. Determination of sex and blood group from buccal mucosa and saliva (must know)
4. Dental DNA methods (must know)
5. Bite marks , rugae pattern and lip prints (must know)
6. Dental importance of poisons and corrosives (desirable to know)
7. Overview of Forensic Medicine and Toxicology (nice to know)
8. Medical Jurisprudence and ethics
9. Writing a report

#### **Module 2 (Final year)**

1. Age estimation - clinical , radiographical , histological
2. Identification of individual
3. Sex determination
4. Bite marks procedures

### **Syllabus**

#### **Module 1 : Introduction to forensic odontology (Third year)**

**Integrating departments: Oral Pathology ; Oral medicine; Forensic medicine**

#### **Objectives :**

At the end of third year BDS the student should be able to:

- Determine the sex and age of the sample
- Determine sex and blood groups from buccal mucosa and saliva
- Know the dental DNA extraction methods
- Know the bite mark analysis and different rugae pattern and lip pattern; and its role in forensic dentistry
- Know the importance of forensic medicine and toxicology



**Teaching – learning methods :**

Large groups - lecture, team teaching

Small groups - group discussions, buzz discussion

**Evaluation – SAQ, MCQ**

**Module 2 : Application of forensic odontology (Final year BDS)**

**Integrating departments: Oral medicine; Oral Pathology**

**Objectives :**

At the end of final year BDS the student should be :

- Familiar with jurisprudence, ethics and understand the significance of dental records with respect to law

**Teaching – learning methods :**

Large groups - lecture, team teaching

Small groups - group discussions, buzz discussion

**Evaluation : SAQ, MCQ**

## **BASIC IMPLANTOLOGY**

### **MODULE 1: Introduction and Diagnosis & Treatment planning in Implantology** - Final year

#### **LEARNING OBJECTIVES :**

The learner should be able to diagnose and plan a treatment for implant placement.  
The learner should be able to assess Periimplant anatomy and appreciate the biology and functional capacity of Osseointegration.

#### **DEPARTMENTS INVOLVED:**

Prosthodontics, oral surgery and Periodontology

#### **SUB TOPICS:**

- Introduction to Implants/history
- Clinical comparison of teeth and Implants
- Soft and hard tissue interface
- Implant macro and micro design
- Case types and indication
- Pretreatment evaluation
- Risk factors and contraindication
- Radiographic evaluation/diagnostic imaging
- Treatment planning

#### **TEACHING LEARNING MEDIA:**

1. Lectures
2. Assignments
3. Case based discussions.

### **MODULE 2 : Surgical aspects Prosthetic aspects, Complications of Dental Implants – Internship**

#### **LEARNING OBJECTIVE:**

The learner should be able to identify implant armamentarium and facilitate implant placement protocols.

The learner should be able to demonstrate impression making in models for single tooth Implant placement

The learner should be able to identify the various types of implant complications

#### **DEPARTMENTS INVOLVED:**

Prosthodontics, Periodontology and Oral surgery

#### **SUB TOPICS:**

- General principles of Implant surgery
- One stage implant placement
- Two stage implant placement
- Introduction to advanced implant surgical procedures
- Principles of fixed implant Prosthesis
- Types of Impression making

- Occlusal considerations for implant supported Protheses
- Biologic complications
- Surgical complications
- Mechanical complications
- Esthetic complication

**TEACHING LEARNING MEDIA:**

1. Lectures
2. Videos
3. Case discussion and presentations
4. Demonstrations

**Overall Evaluation:**

1. OSPE/OSCE
2. Viva voce
3. Implant placement (minimum quota of ONE)

**Suggested books for reading:**

Contemporary Implant Dentistry – Carl. E. Misch, Mosby

Osseointegration and occlusal rehabilitation- Hobo.S.Ichida E. and Garcia LT.  
Quintessence Publishing Company.

**CURRICULUM OF  
DENTAL INTERNSHIP PROGRAMME**

**Systematic Competency Oriented  
Education (SCORE)**

**DENTAL COUNCIL OF INDIA**  
**REVISED INTERNSHIP PROGRAMME, 2011**  
**CURRICULUM OF DENTAL INTERNSHIP PROGRAMME**  
**Systematic Competency Oriented Education (SCORE)**

1. The duration of Internship shall be one year.
2. All parts of Internship shall be done in a Dental college duly recognized/ approved by the Dental Council of India for the purpose of imparting education and training to Dental graduates in the country.
3. The Interns shall be paid stipendiary allowance during the period of an internship not extending beyond a period of one year.
4. The internship shall be compulsory and rotating as per the regulations prescribed for the purpose.
5. The degree BDS shall be granted after completion of internship

**Determinants of Curriculum for Internship for Dental Graduates :**

The Curricular contents of internship training shall be based on.

- i) Dental health needs of the society.
- ii) Financial, material and manpower resources available for the purpose
- iii) National dental health policy
- iv) Socio-economic conditions of the people in general
- v) Existing dental as also the primary health care concept, for the delivery of health services
- vi) Task analysis of what graduates in dentistry in various practice settings, private and government service actually perform
- vii) Epidemiological studies conducted to find out prevalence of different dental health problems, taking into consideration the magnitude of dental problems, severity of dental problems and social disruption caused by these problems.

**Objectives:**

- A.** To facilitate reinforcement of learning and acquisition of additional knowledge:-
- a. Reinforcement of knowledge b. Techniques and resources available to the individual and he community. Social and cultural setting c. Training in a phased manner, from a shared to a full responsibility
- B.** To facilitate the achievement of basic skills: attaining competence Vs. maintaining competence in:- a. History taking b. Clinical examination c. Performance and interpretation of essential laboratory data d. Data analysis and inference e. Communication skills aimed at imparting hope and optimism in the patient f. Attributes for developing working relationship in the clinical setting and community team work

- C. To facilitate development of sound attitudes and habits:-
  - a. Emphasis on individual and human beings, and not on disease / symptoms
  - b. Provision of comprehensive care, rather than fragmentary treatment
  - c. Continuing dental education and learning of accepting the responsibility
- D. To facilitate understanding of professionals and ethical principles:-
  - a. Right and dignity of patients
  - b. Consultation with other professionals and referral to seniors/ institutions
  - c. Obligations of peers, colleagues, patients, families and community
  - d. Provision of free professional services in an emergent situation
- E. To initiate individual and group action, leading to disease prevention and dental health promotion, at the level of individuals families and the community

#### **Content (subject matter)**

The compulsory rotating paid dental internship shall include training in oral medicine and radiology; oral and maxillofacial surgery; Prosthodontics; periodontics; conservative dentistry; Pediatric and Preventive Dentistry; oral pathology and microbiology; orthodontics and community dentistry.

#### **General Guidelines :**

1. It shall be task-oriented training. The interns should participate in various institutional and field programmes and be given due responsibility to perform the activities in all departments of the dental colleges and associated institutions.
2. To facilitate achievement of basic skills and attitude the following facilities should be provided to all dental graduates
  - a. History taking, examination, diagnosis, charting and recoding treatment plan of cases
  - b. Presentation of cases in a group of seminar
  - c. Care and sterilization of instruments used
  - d. Performance and interpretation of essential laboratory tests and other relevant investigations
  - e. Data analysis and inference
  - f. Proper use of antibiotics, anti-inflammatory and other drugs, as well as other therapeutic modalities
  - g. Education of patients, their relatives and community on all aspects of dental health care while working in the institution as also in the field
  - h. Communication aimed at inspiring hope, confidence and optimism
  - i. Legal rights of patients and obligations of dental graduate under forensic jurisprudence

#### **1. Oral Medicine and Radiology**

1. Standardized examination of patients 25 cases
2. Exposure to clinical, pathological laboratory procedures & biopsies 5 cases
3. Effective training in taking of radiographs 2 full mouth (intra oral) I.O. (extraoral) E.O. 1 Cephalogram 1
4. Effective management of cases in wards 2 cases

## 2. Oral and maxillofacial surgery

The internes during their posting in oral surgery shall perform the following procedures:

1. Extractions 50
2. Surgical extractions 2
3. Impactions 2
4. Simple intra maxillary fixations 1
5. Cysts enucleations 1
6. Incision and drainage 2
7. Alveoloplasties, biopsies and frenectomies etc 3

B. The interns shall perform the following on cancer patients:

1. Maintain file work.
2. Do extractions for radiotherapy cases.
3. Perform biopsies.
4. Observe varied cases of oral cancers.

C. The internes shall have 15 days posting in emergency services of a dental/general hospital with extended responsibilities in emergency dental care in the wards. During this period they shall attend to all emergencies under the direct supervision of oral surgeon during any operation:

1. Emergencies.

(i) Toothache; (ii) trigeminal neuralgia; (iii) Bleeding from mouth due to trauma, post extraction, bleeding disorder or haemophilia; (iv) Airway obstruction due to fracture mandible and maxilla; dislocation of mandible; syncope or vasovagal attacks; Ludwig's angina tooth fracture post intermaxillary fixation after general anaesthesia.

2. Work in I. C.U with particular reference to resuscitation procedures.

3. Conduct tutorials on medico-legal aspects including reporting on actual cases coming to casualty. They should have visits to law courts.

## 3. Prosthodontics

The dental graduates during their internship posting in Prosthodontics shall make:

1. Complete denture (upper& lower) - 2
2. Removable partial denture – 4
3. Fixed partial denture - 1
4. Planned cast partial denture - 1
5. Miscellaneous-like reline/overdenture/ repairs of Maxillofacial prosthesis – 1
6. Learning use of face bow and semi anatomic Articulator technique
7. Crowns
8. Introduction of Implants

## 4. Periodontics

A. The dental graduates shall perform the following procedures

1. Prophylaxis - 15 Cases
2. Flap Operation - 2 Cases
3. Root planning - 1 Case

4. Curettage - 1 Case
5. Gingivectomy - 1 Case
6. Perio-Endo cases - 1 Case

B. During their one week posting in the community health centers, the interness shall educate the public in prevention of Periodontial diseases.

### 5. Conservative Dentistry

To facilitate reinforcement of learning and achievement of basic skills, the internsshall perform atleast the following procedures independently or under the guidance of supervisors:

1. Restoration of extensively mutilated teeth - 5 Cases
2. Inlay and onlay preparations - 1 case
3. Use of tooth coloured restorative material - 4 Cases
4. Treatment of discoloured vital and non-vital Teeth - 1 Case
5. Management of dento alveolar fracture - 1 Case
6. Management of pulpless, single- rooted teeth without periapical lesion - 4 Case
7. Management of acute deto alveolar Infections - 2 cases
8. Management of pulpless, single-rooted Teeth with prepheral lesion period - 1 Case
9. Non-surgical management of traumatised teeth during formative period.

### 6. Pediatric and Preventive Dentistry

During their posting in Paedodontics the Dental graduates shall perform :

1. Topical application of fluorides including varnish - 5 Cases
2. Restorative procedures of carious deciduous teeth In children - 10 Cases
3. Pulpotomy - 2 Cases
4. Pulpectomy - 2 Cases
5. Fabrication and insertation of space maintainers - 1 Case
6. Oral habits breaking appliances - 1 Case

### 7. Oral pathology and microbiology

The internes shall perform the following:

1. History-recording and clinical examination - 5 cases
2. Blood, Urine and Sputum examination - 5 cases
3. Exfoliative Cytology and smears study - 2 cases
4. Biopsy – Laboratory Procedure & reporting - 1 case

### 8. Orthodontics:

A. The interns shall observe the following procedure during their posting in orthodontics:

1. Detailed diagnostics procedure for 5patients
2. Laboratory techniques including wire- bending for removable appliances soldering and processing of myo- functional appliances.
3. Treatment of plan options and decisions.
4. Making of bands, bonding procedure and wire insertions
5. Use of extra oral anchorage and observation of force values.
6. Retainers.



7. Observe handling of patients with oral habits causing malocclusion.

The dental graduates shall do the following laboratory work:

1. Wire bending for removable appliances and space maintainers including welding and heat treatment procedure - 5 cases
2. Soldering exercises, banding & bonding procedures - 2 cases
3. Cold-cure and heat-cure acrylicisation of simple Orthodontics appliances - 5 cases

**9. Public Health Dentistry:**

1. The interns shall conduct health sessions for individuals and groups on oral health, public health nutrition, behavioral sciences, environmental health, preventive dentistry and epidemiology.
2. They shall conduct a short term epidemiological survey in the community, or in the alternate, participate in the planning and methodology.
3. They shall arrange effective demonstration of:
  - a) Preventive and interceptive procedures for prevalent dental diseases.
  - b) Mouth-rinsing and other oral hygiene demonstrations - 5 cases
  - c) Tooth brushing techniques - 5 cases
4. Conduction of oral health education programmes at
  - a) School setting - 2
  - b) Community setting - 2
  - c) Adult education programmes - 2
5. Preparation of Health Education materials - 5
6. Exposure to team concept and National Health Care systems:
  - a) Observation of functioning of health infrastructure.
  - b) Observation of functioning of health care team including multipurpose worker male and female, health educators and other workers.
  - c. Observation of at least one National Health Programme:
  - d. Observation of interlink ages of delivery of oral health care with primary Health care. Mobile dental clinics, as and when available, should be provided for this teachings.

**10. Elective Posting:**

The interns shall be posted for 15 days in any of the dental departments of their choice mentioned in the foregoing.

**Organisation of content:**

The curriculum during the 4 years of BDS training is subject based with more emphasis on learning practical skills. During one year internship the emphasis will be on competency-based, community oriented training. The practical skills to be mastered by the interns along with the minimum performance level are given under the course content of different departments of Dental Education. The supervisors should ensure that proper facilities are provided in all departments and attached institution for their performance.

**Specification of Teaching Activities:**

Didactic lectures are delivered during the four years in BDS. These shall be voided during the internship programme. Emphasis shall be on chair-side teaching, Small group teaching and discussions tutorials, seminars, ward posting, laboratory posting, field visits and self learning.

**Use of Resource Materials:**

Overhead projectors, slide projectors, film projectors chart diagrams, photographs, posters, specimens, models and other audiovisual aids shall be provided in all the Dental Colleges and attached institutions and field area. If possible, television, video and tapes showing different procedures and techniques to be mastered by the internes should be provided.

**Evaluation:**

**1. Formative Evaluation:**

Day-do-day assessment of the internes during their internship posting should be done. The objectivities that all the interns must acquire necessary minimum skills required for carrying out day-to-day professional work competently. This can be achieved by maintaining records and performance data book by all internes. This will not only provide a demonstrable evidence; of the processes of training but more importantly, of the internes own acquisition of competences as related to performance. It shall form a part of formative evaluation and shall also constitute a component of final grading of interns.

**2. Summative Evaluation:**

It shall be based on the observation of the supervisors of different departments and the records and performance data book maintained by the interns. Grading shall be done accordingly.

**Rural Services:**

In the rural services, the student will have to participate in-

1. Community Health Monitoring programmes and services which include Preventive, Diagnostic and corrective procedures.
2. To create educational awareness about dental hygiene and diseases.
3. Conduction of Oral Health Education Programme at –
  - a) School Setting - 5
  - b) Community Setting - 5
  - c) Adult Education Program - 5
4. Compulsory setup of satellite clinics in remote areas - 1
5. Lectures to create awareness and education in public forums about the harmful affects of tobacco consumption and the predisposition to oral cancer – two Lecturers per student.

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**Period of Posting:**

1. Oral Medicine & Radiology - 1 month

**Internship Programme**

2. Oral & Maxillofacial Surgery - 1½ months
3. Prosthodontics - 1½ months
4. Periodontics - 1 month
5. Conservative Dentistry - 1 month
6. Pediatric and Preventive Dentistry - 1 month
7. Oral Pathology and Microbiology - 15 days
8. Orthodontics - 1 month
9. Community Dentistry/Rural services - 3 months
10. Elective - 15 days



**SBV**