SRI BALAJI VIDYAPEETH

(Deemed to be University Declared u/s 3 of UGC act 1956)

Accredited by NAAC with 'A' Grade

Pondicherry – 607402.

www.sbvu.ac.in

MAHATMA GANDHI MEDICAL COLLEGE & RESEARCH INSTITUTE, PONDICHERRY

SHRI SATHYA SAI MEDICAL COLLEGE & RESEARCH INSTITUTE, KANCHEEPURAM DT

FACULTY OF ALLIED HEALTH SCIENCES

B.Sc. OPERATION THEATRE TECHNOLOGY

2019 -2020 ONWARDS

FIRST, SECOND & THIRD YEAR SYLLABUS AND REGULATIONS

CHOICE BASED CREDIT SYSTEM (CBCS) PATTERN SYLLABUS

(As approved in the Academic Council at the meeting held on 22-05-2019)

Revisit of the syllabus and Examination pattern

(As approved in the Academic Council at the meeting held on 28-09-2020)

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FOREWORD

In recent years, several innovative and need based undergraduate courses in the realms of Faculty of Allied Health Sciences have been promulgated. These courses are primarily oriented towards augmenting the Core academic courses in the Health Care sector.

Although, Allied Health Science courses are in place at several institutes county wide, mention must be made of the fact that only a few Health Science Universities offer courses in Allied Health Sciences under a holistic umbrella. It is in the fitness of things that Allied Health Science courses are being offered in Nodal and Thrust areas at Sri Balaji Vidyapeeth starting from Certificate programme through Doctoral studies.

The Undergraduate programme of Allied Health Science courses leading to B.Sc degree has been very carefully planned taking all the three components into due consideration, namely academics, patient care and research. Competency assumes great importance as the graduates coming out of these programmes would either directly or indirectly assist the Clinicians in day to day activities.

With this in view, the thrust has been laid on a common syllabus for all B.Sc programmes during the first year of study. These subjects offered in the first year are oriented Basic Medical Sciences, besides English as a mode of communication which is vital for affording Global Placements to our successful candidates. Furthermore all programmes are designed in Choice Based Credit System (CBCS) made to suit the convenience of the students. The proficiency and competence of the Undergraduates is fortified by the promulgation of a unique internship cum research programme.

I wish all students success in their studies and career.

Prof. N. Ananthakrishnan

Dean – Faculty, SBV

POLICY ON COURSES OFFERED UNDER FACULTY OF ALLIED HEALTH SCIENCES

PREAMBLE

Sri Balaji Vidyapeeth, Deemed to be University, established under Section 3 of UGC Act, 1956, Accredited by NAAC with A Grade offers various courses under the Faculty of Medicine, Faculty of Dentistry, Faculty of Nursing Sciences and Faculty of Allied Health Sciences.

"Allied Health Professions are a distinct group of health professionals who apply their expertise to prevent disease transmission, diagnose, treat and rehabilitate people of all ages and all specialties. Together with a range of technical and support staff they may deliver direct patient care, rehabilitation, treatment, diagnostics and health improvement interventions to restore and maintain optimal physical, sensory, psychological, cognitive and social functions." - Organization of International Chief Health Professions Officers (ICHPO).

In March 2011, the Ministry of Health and Family Welfare nominated the Public Health Foundation of India (PHFI) as its technical partner and constituted the National Initiative for Allied Health Sciences (NIAHS) secretariat with a mandate to develop a framework to improve allied health training, education and regulation in the country. (Yet to be notified by Government of India).

Sri Balaji Vidyapeeth has introduced several innovative need based courses under the Faculty of Allied Health Sciences at Undergraduate and Postgraduate levels keeping in mind the initiative of Ministry of Health & Family Welfare, Government of India. In an era marked by expanding global job opportunities, these courses are bound to create an awareness among the students to suit themselves in the Health Care Team. Curricula have been designed in an objective manner and are aimed at cognitive, affective and psychomotor domains of learning. Furthermore all courses are designed in Choice Based Credit System (CBCS) made to suit the convenience of the students.

The Undergraduate courses mainly concentrate in creating professionals who form the part of the Health Care Team. The role of these professional is to ably assist the doctor in treatment as well as prognosis and in many a times form the core professional of the team. The proficiency and competence of the Undergraduates is fortified by the promulgation of a unique internship cum research programme.

The Postgraduate courses mainly aim at shaping a graduate into a full professional. Also these postgraduate courses help the graduates as well as the postgraduates to acquire specific skills on various adjunct therapies and techniques.

SUPPLY AND DEMAND

The starting of the new courses will entirely depend on

a. Demand for the course as seen by the enrolment at other institutes.
b. Employability after the qualification.

At present, the shortage of quality human resources is one of the major challenges faced by the public health domain in India. To redress the imbalance in human resources, the Working Group on Medical Education Training and Manpower Training of the Planning Commission (1984) prioritized training of para-professional and auxiliary personnel as follows:

- Training and development of auxiliary health professionals
- Training and development of para-health professionals
- Basic and pre-service/induction training in health care and health management
- Continuing education in health profession education.

Many new health occupations (Physician's Assistant, Optometrists, Medical Imaging Technologists, and Laboratory Technologists etc) have access over several common features in Allied Health Sciences including Basic Medical Sciences which are being effectively addressed. These processes have received support from administrators who are constantly searching for economic qualified and quality labor.

Service users are becoming more empowered through the consumerism of health, which has resulted in better access to information and user-consultation in service development and delivery. Each of these factors has the potential to influence the roles of existing professional groups and presents a challenge to workforce planners. In India, students are not aware of all the allied health courses available in the medical education system. Their career choices are generally influenced by their parents and peer groups, who themselves are unaware of the prospects in this area. By understanding that an entry-level position is just a first step, youth can realistically plan for their future and have a better understanding of what is needed for long-term success. This approach also benefits employers who need a steady inflow of workers at all levels of their organization.

POLICY ON ELIGIBILITY, ADMISSION, & COURSE DURATION OF UG DEGREE COURSES

At Sri Balaji Vidyapeeth, we empower the departments of all the constituent colleges to contribute to the development of innovative, need, value based and job oriented courses taking into considerations the interests of the stakeholders.

The Undergraduate Degree courses (B.Sc.) are presently being offered under the Choice Based Credit System (CBCS) mode as per the Guidelines of UGC. The duration of the course will be Three years with a compulsory internship of 1 year (Non Stipendiary) in any of the tertiary health care institute of the University/ Trust. The proficiency and competence of the Undergraduates is fortified by the promulgation mandatory for appearing at the University Examinations. The maximum time limit for completion of the course will be Six years. However, the Dean / Principal, AHS has the discretionary powers to extend the course duration on valid grounds (Health, Maternity, Natural Disaster, etc.).
The First year of B.Sc. (AHS) courses will be common for all the disciplines. Though the disciplines will be provisionally allotted at the time of admission itself, upon

successful completion of the First year the candidates may opt for a change in the discipline or the college which will be permitted depending on the vacancy and on merit based on the First year marks.

Fourth year – Internship Programme

One-year compulsory internship in various intensive care units, outpatient departments, research center under Sri Balaji Vidyapeeth during which the students get to hone the skills and knowledge acquired in the three years of study. This year ensures their readiness to approach a patient in any setting. The students should also complete a short duration project (in their areas of interest) and also maintain and submit a log book. The degree will be awarded only upon the successful completion of the course including the internship period. The one-year compulsory internship includes postings at the respective department.

Eligibility for Admission

A candidate seeking admission in the B.Sc. Allied Health Sciences courses shall be completing the age of 17 years as on December of the admission year. The candidate shall have passed the Higher Secondary Examinations conducted by the State Board or the Central Board or its equivalent. The candidate should have studied English as one of the papers and passed the same. The candidate should have had Biology, Physics & Chemistry and have passed the same in their qualifying Examinations. Mathematics as a subject is mandatory for B.Sc. Optometry, Medical Imaging Technology and Clinical Research.

The candidate should have secured 50 percent as aggregate in the subjects of English, Biology, Physics and Chemistry at the Higher Secondary Examinations. A relaxation of 5 percent in the minimum required (50%) shall be awarded to the candidates belonging to SC/ ST communities and physically challenged candidates (Disability more than 40%). The candidates seeking relaxation should necessarily submit the relevant certificates issued by the concerned Government authorities while applying for the course and mention about the same in their application.

Lateral Entry

Candidates who have Diploma of Two years in the concerned subject from a recognized University can seek Lateral Entry to the second year of the concerned courses provided that they have studied Anatomy, Biochemistry, Physiology, Microbiology and Pathology as individual papers during their Diploma Course.

Note: The candidates who have completed their Diploma Course through Distance Education modes are not eligible to seek admission through Lateral Entry mode.

Shorter intrinsic training programmes of duration few weeks to a month or so will be conducted by the departments under the Supervision of the concerned HOD / Dean / Principal.

POLICY ON CHANGE OF NAME/DATE OF BIRTH

The name and date of birth of candidates will be registered in the records of the University as given in their H.S.C. Mark Statement/Transfer Certificate only. No request will be considered later, to correct the spelling of the name of the candidates.

The parents and candidates are requested to verify and confirm these entries in the H.S.C. Mark Statement / Transfer Certificate at the time of receipt of the same. Once admitted to a course of study in the University, date of birth as furnished in the HSC/School record of student and submitted to the University at the time of admission, shall be taken as final proof and no subsequent request for change of date of birth will be entertained by the University at any time under any circumstance, either during the course of study or after the completion of such study. The student should take utmost care while entering their details in SBV GARUDA portal at the time of their registration. They are responsible for any data mismatch at later stage.

Every student shall give an undertaking to this effect duly countersigned by his/her parent or guardian at the time of admission.

PAYMENT OF TUITION AND OTHERFEES

Every student shall pay tuition fee and other fee, as prescribed by the University, within the due date notified. The fees are subject to revision as per rules of the University. All fees, once paid to the University, will not be refunded or adjusted for any other purpose under any circumstance.

RULES FOR DISCONTINUANCE FROM COURSE OF STUDY

Where any student applies for discontinuance, or without any application discontinues on his/her own, from the course to which he/she has been admitted to, for any reason, either after the cut-off date prescribed by the statutory authorities/ University for admission to the first year of the course concerned or where the seat is rendered vacant without having any chance of being filled up with any other candidate from waiting list etc., such students will have to remit the tuition fee and other applicable fees for the **'Entire/Remaining Course Period'**. Unless and until payment of all the prescribed fees for the entire/remaining course period is made to the University account, such student shall not be entitled to any certificate including transfer certificate, mark sheets etc., to be issued by the College/ University and to get back his/her original certificates deposited with the University at the time of admission. All students and parent will be required to furnish a declaration agreeing to the above said conditions at the time of admission.

POLICY ON RAGGING

Ragging is strictly prohibited in the University Campus. Sri Balaji Vidyapeeth strictly enforces anti-ragging measures and the campus is free from any form of ragging. Any violation will be dealt with according to the law in force and as per directives of the Supreme Court of India. The University has adopted the ―Medical Council of India (Prevention and Prohibition of ragging in Medical College / Institutions) Regulations, 2009‖ and ―UGC Regulations on curbing the menace of Ragging in Higher Educational

Institutions, 2009‖ and these Regulations shall be applicable to all students. These Regulations are available in the University Website.

IMPORTANT NOTE

All admissions are subject to fulfillment of all the prescribed eligibility conditions by the candidate. If it is found either at the time of admission or at a later stage, that the candidate has given false information/forged certificates or concealed material information, his/her admission shall be cancelled and the student shall be dismissed from the college immediately.

The University reserves the right to change the curriculum, course structure and the rules relating to admission, examinations, fee structure, refunds, etc.

All disputes arising in the interpretation and implementation of the provisions will be referred to the Vice-Chancellor of Sri Balaji Vidyapeeth and Vice-Chancellor's decision shall be final and binding.

In respect of matters relating to or arising out of this prospectus the jurisdiction shall lie in Puducherry alone.

FUTURE PLANS

It is planned to conduct an informal market survey and start AHS Certificate & M.Sc courses.

OUTLINE OF THE CHOICE BASED CREDIT SYSTEM (CBCS) FOR UNDERGRADUATE DEGREE PROGRAMME

Credit System Credit System (CBCS): The CBCS provides choice for students to select from the prescribed courses (core, elective or minor or soft skill courses).This is to enhance the quality and mobility of the students within and between the Universities in the country and abroad.

Credit hours
16 Theory classes = 1 credit
32 Practical/Tutorial/Clinical training/Research project = 1 credit

Subjects	Credits
Each core subjects	6 Credits
Ability Enhancement Compulsory course (AECC)	2 Credits
Skill Enhancement course (SEC)	2 Credits
Generic Elective course (GE)	4 Credits
Discipline Electives (DE)	4 Credits

Core course: A Hard core course may be a Theory, Practical (lab), clinical rotation/field work or Research Project Work which are compulsory component studied by candidate to complete the requirement of their programme.

Discipline Elective (DE) Course: An elective course which is supportive or related to the discipline/subject (i.e. supportive to core course) is called a Discipline Elective (DSE) Course.

Generic Elective (GE) Course: An elective course which is unrelated to the discipline/subject (i.e. unrelated to core course) to expand their knowledge chosen by a candidate is called a Generic Elective.

Skill Enhancement Courses (SEC): This course chosen by candidate which provides additional value-based and skill-based knowledge to increase their employability.
NPTEL/ SWAYAM / MOOC/ Other value-added online courses

COLLEGES	PROGRAMMES WHICH INVOLVE CREDIT TRANSFER
Mahatma Gandhi Medical College and Research Institute & Shri Sathya Sai Medical College and Research Institute	B. Sc. (AHS)

Each Undergraduate student of B.Sc (AHS) is recommended to earn a minimum of **EIGHT credits** from the online courses offered through SWAYAM - NPTEL – MOOCs platform during their Course period. It is to be noted that the student earns the credit prior to the starting of their internship.

PROGRAMME	DESIRABLE CREDITS	NUMBER OF COURSES
B.Sc. (AHS)	Minimum - 8 credits	Minimum - 4 Maximum - 6

It is required of the Undergraduate students (B.Sc – AHS) that in addition to their curricular requirement of the programme, it is recommended for enhancing job opportunities for the student to earn minimum of prescribed credits from the online courses offered through SWAYAN - NPTEL – MOOCs platform that will be transferred
into the students' Statement of Marks, issued during the final year of their study. This has to be completed prior to the starting of their internship programme and students have to be informed that **those who do not earn the minimum credits prescribed by SBV, it will be mentioned NIL for the details on credits transferred from ONLINE courses in their FINAL year statement of marks issued by SBV.**

Credit points during Internship

For the 16 UG Internship programmes, there is a Minimum of 40 Credit points to a maximum of 45 Credit points which the students have to obtain. Credit points will be assessed based on the student's satisfactory attendance, performance in the Clinical /Camp postings / Seminars /Presentation of the logbook & Research project.

CRITERIA FOR UNIVERSITY EXAMINATIONS

Eligibility / Maximum Duration for the Award of the Degree

a) The candidates shall be eligible for the bachelor degree when they have undergone the prescribed course of study for a period of not less than four years (3 Years + 1 Year Internship) in an institution approved by the university and have passed the prescribed examination in all subjects.

b) A student who does not meet the minimum attendance requirement in a year must compensate the inadequacies before appearing examination.

To reaffirm the passing minimum in the University Examinations for all the Undergraduate courses offered under the Faculty of Allied Health Sciences.

- A candidate shall secure a minimum of 50% aggregate in University Core theory/ Elective theory Exams and Internal Assessment put together.
- A candidate shall secure a minimum of 50% aggregate in University Practical and Internal Assessment put together.
- For Skill based electives, a candidate shall secure a minimum of 50% aggregate in University Practical cum Viva Exams and Internal Assessment put together.

Retotaling / Revaluation and Grace Mark

There is no provision for **Retotaling / Revaluation for AHS programme.**

Grace marks up to a maximum of five marks may be awarded at the discretion of the university to a student who has failed and shall be distributed among the failed subjects.

SCHEME OF EXAMINATION

1) **Attendance Requirements**: 80% hours of learning in each Core Subjects / Electives / Practical's /Postings for appearing for the university exams.
2) **Minimum marks required to be eligible for University Examination**: 35% marks in the internal assessment (Theory / Practical) are required for the candidate to be eligible to appear in the University Examinations.
3) **Passing Minimum**: 50% aggregate both in theory and practical's including internal assessment marks is required for a candidate to pass in the University Examinations.
4) **Submission of Record Note Books for practical examinations**

Candidates appearing for practical examinations should submit bonafide Record Note Books prescribed for practical examinations, otherwise the candidates shall not be permitted to appear for the practical examinations.

GRADING

Marks obtained by candidate	Equivalent grade letter	Grade descriptor	Grade point
85 % & above	O	Outstanding	10
75-84	A+	Excellent	9
65-74	A	Very good	8
60-64	B+	Good	7
55-59	B	Above average	6
50-54	C	Average pass	5
49 & below	F	Reappear	0
	AB	Absent	0

A student obtaining **Grade F** shall be considered failed and will be required to reappear in the examination.

Conversion formula for Percentage to CGPA
Percentage divided by 9.5 = CGPA

Award of Class

Class division will be based on CGPA grade

≥ 7.8 grade point = Distinction Division
≥ 6.8 and < 7.7 grade point = First class Division
≥ 6.3 and < 6.7 grade point = Second class Division
≥ 5.2 and < 6.2 grade point = Third class Division
< 5.2 and below – Fail

Computation of SGPA and CGPA will be in accordance with the UGC Guidelines & Recommendations. It is a measure of overall cumulative performance of a student over all exams. The CGPA is the ratio of total credit points secured by a student in various courses in all exams and the sum of the total credits of all courses in all the University exams. It is expressed up to two decimal places.

Cumulative Grade Point Average (CGPA): It is a measure of overall cumulative performance of a student over all exams. The CGPA is the ratio of total credit points secured by a student in various courses in all exams and the sum of the total credits of all courses in all the University exams. It is expressed up to two decimal places.

Grade Point: It is a numerical weight allotted to each letter grade on a 10-point scale.

Transcript: Based on the credits earned, a transcript shall be issued to all the registered students after the completion of the program indicating the hours of study and structure of the curriculum delivery as prescribed in his/her curriculum and completed by the student. The transcript will display the course details, including course code, title, and number of credits, hours and type of contact hours in a semester.

INTERNAL ASSESSMENT

1. Continuous Internal Assessment (CIA) for all AHS programs with a minimum of 4 Assessments per year.
2. Internal Assessment will be done in each subject according to the scheme of examinations. The IA marks will be on the basis of performance in the assignment, class tests and practical test in the clinical areas.

Evaluation of Clinical Rotation

Lab, Clinical cum Community postings - To conduct practical‘s or viva based on the Heads of the concerned department‘s decision and the total 100 marks to be sent to COE through proper channel to find a place in the transcript.

Question Paper Pattern

The following question paper patterns shall be followed for CBCS pattern syllabi for the candidates admitted from the academic year 2019-20 onwards.

CORE SUBJECTS

For **UG NON-SEMESTER COURSES -** Each Core Subjects University Exam carries -100 marks of 80(Theory) + 20 (IA marks) which consists of

Theory – 80 marks			
I	Essay-type questions of either / or type -(like 1.a (or) 1.b)	2 (of either / or type)	2 x 10=20
II	Short answer questions	6 (*1 choice)	5 x 6=30
II	Very Short answer questions	12 (*2 choice)	10 x 3=30

The University duration of 80 marks – 3 Hours For courses having Section A & Section B Subjects

For **Section A & Section B** Subjects University Exam carries - 50 marks for each Section consisting of 40 (Theory marks) + 10 (IA marks)

Theory – 40 marks			
I	Essay-type questions of either / or type -(like 1.a (or) 1.b)	1 (of either / or type)	1 x 10 = 10
II	Short answer questions	5 (*2 choice)	3 x 6= 18
II	Very Short answer questions	5 (*1 choice)	4 x 3 = 12

ELECTIVE SUBJECTS

For all UG NON SEMESTER **COMPULSORY, GENERIC & DISCIPLINE** Elective University Exam papers carries- 50 marks of 40 (Theory)+10 (IA marks) which consists of

Theory – 40 marks			
I	Short answer questions	5 (*3 choice)	5 x 6=30
II	Very Short answer questions	5 (*2 choice)	5 x 2=10

*** Number of choices given**

- For **SKILL BASED ELECTIVES** from 2019-20 batch onwards all UG AHS courses will have 40 marks as university Practical cum Viva examination & 10 marks as Internal Assessment = 50 marks.
- 50 marks of the **COMPULSORY, GENERIC, DISCIPLINE & SKILL BASED ELECITIVES** which will be converted to 100 marks in the transcript.

CONDONATION FOR SHORTAGE OF ATTENDANCE

Condonation of shortage of attendance in aggregate up to 10% in each Year may be granted by the college Academic Committee and as per regulations of university.

PROGRAMME OUTCOME - B.Sc OPERATION THEATRE TECHNOLOGY

At the end of 4 years of this training session, this curriculum will make students to achieve the following objectives:

OT T -PO1: Performs the duty as an Operation Theatre Technologist with leadership qualities having a good written & communication skill and also skilled at computer applications including E- library.

OT T -PO2: To gain knowledge about laboratory safety precautions, biomedical waste management adhering to the environmental needs of the society and preventing the spread of infectious diseases.

OT T -PO3: Understanding the structure and functions of different organs in normal human body.

OT T -PO4: Ability to perform urinalysis, Serology, hematology, cytology, blood banking, biochemical, microbiological parameters and drug reactions.

OT T -PO5: To make students assist Anesthesiologist during administration and monitoring of Anesthesia including cardiopulmonary resuscitation.

OT T -PO6: To make students in effective participation of basic clinical skills, application of health promotion and disease prevention strategies.

OT T -PO7: To make students aware of the basic surgical and ethical principles, infection control protocol followed in operating room complex.

OT T -PO8: To make students participate in OT administration, organization and quality improvement.

OT T -PO9: To make students understand the pharmacological principles pertaining to the drugs used in anesthesia and critical care unit.

OT T -PO10: To build efficient technologist in handling Anesthesia monitors, Anesthesia & surgical Equipment‘s practice.

OT T -PO11: To make students effective in preparation of operation theatre for all super specialty surgeries & effective participation in labor analgesia, trauma care and management.

OT T -PO 12: To make students assist surgeons in all elective and emergency surgical procedures and providing basic general care and expertise in pulmonology radiological studies, interventional cardiology procedures.

OT T -PO 13: To identify various life style disorders and with due counseling& guidance advising the patients with proper diet, hygiene and Yoga to keep the body, mind, soul and behavior healthy.

I YEAR

FACULTY OF ALLIED HEALTH SCIENCES

SRI BALAJI VIDYAPEETH

(Deemed to be University)

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COMMON SYLLABUS FOR ALL FIRST YEAR B.Sc. ALLIED HEALTH SCIENCES

CORE SUBJECTS

1. Anatomy
2. Physiology
3. Biochemistry
4. Pathology &Microbiology

ELECTIVES

Ability Enhancement compulsory course (AECC)

1. English

Skill enhancement course (SEC) – Choose any TWO

1. Culinary Skills for optimal nutrition
2. Enhancing soft skill &personality
3. Basics of Yoga &Practice
4. Speaking effectively

Generic Elective Course (GEC) – Choose any ONE

1. Basics of Hospital Administration
2. Counseling and Guidance
3. Lifestyle Disorders

SCHEME OF CREDIT BASED ACADEMIC CURRICULUM

Faculty Code	Category	Course Title	Hours					Credits				
AHS	**Core theory CCT**	**Subjects**	**Theory**	**Practical**	**Tutorials**	**Lab training**	**Total hours**	**Lecture (L)**	**Practical**	**Tutorials**	**Lab training**	**Credits**
AHS	CCT-1	Anatomy	80		32			5		1		6
AHS	CCT-2	Physiology	80		32			5		1		6
AHS	CCT-3	Biochemistry	80		32			5		1		6
AHS	CCT-4	Pathology	40		16			5		1		6
AHS		Microbiology	40		16							
AHS	Lab training CCT 1 to 4					192					6	6
AHS	AECC	English	16	34				1	1			2
AHS	SEC – 1-3	Student‘s choice	16	32				1	1			2
AHS	SEC – 1-3	Student‘s choice	16	32				1	1			2
AHS	GEC 1-3	Student‘s choice	64					4				4
			432	**98**	**128**	**192**	**850**	**27**	**3**	**4**	**6**	**40**

SCHEME OF EXAMINATION AHS - I YEAR BASIC SCIENCES

Papers	Subject	Theory		Practical		Theory	Practical	Grand Total (900)	Min marks to pass % (450)
		UE	IA	UE	IA	UIA*	UIA*		
CCT-1	Anatomy	80	20					100	50
CCT-2	Physiology	80	20					100	50
CCT-3	Biochemistry	80	20					100	50
CCT-4	Pathology	40	10					100	50
	Microbiology	40	10						
CCT -LT	Lab training Core 1 to 4						100	100	50
AECC	Ability enhancement Compulsory Course- English	80	20					100	50
SEC	Skill enhancement Course	80	20					100	50
SEC	Skill enhancement Course	80	20					100	50
GEC	Generic elective	80	20					100	50

***UIA – University Internal Assessment only for Lab Trainings (No Final University Examination).**

Passing criteria -50 % aggregate both in theory and practical's including internal assessment marks

For all elective course, 40 marks for university theory and Practical cum Viva examination & 10 marks as Internal Assessment = 50 marks which will be converted to 100 marks in the transcript

ANATOMY

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES – ANATOMY

NAME OF THE SUBJECT PAPER	**: ANATOMY**
DURATION OF THEORY CLASSES	**: 80 Hrs**
DURATION OF TUTORIAL SESSIONS	**: 32 Hrs**
DURATION OF LAB TRAINING	**: 40 Hrs**
EXAMINATION	**: 100 Marks (80 U + 20IA)**
NO UNIVERSITY PRACTICAL EXAMINATION	
DURATION OF THEORY EXAMINATION	**: 3 Hrs**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: I YEAR**

COURSE DESCRIPTION

The course is designed to assist students to acquire knowledge of the normal structure of human body and its functions. To ensure that the students understand the alteration in anatomical structure and function in disease in the practice of accident and emergency care technology.

OBJECTIVES

At the end of the course, the student will be able to

1. Describe the anatomical terms, organization of human body and structure of cell, tissue, membranes and glands.
2. Describe the structure and functions of bones and joints.
3. Describe the structure and functions of systems in body. Have knowledge about Applied Anatomy

COURSE OUTCOMES FOR ANATOMY

At the end of the course, students will be able to...

AN-AHS-CO1: Explains the Gross and Microscopic structure of human body.

AN-AHS-CO2: Explains the normal structure and integration of the functions of the organs and systems on basis of the structure of Human body.

AN-AHS-CO3: Explains the clinical correlation of the organs and structures involved and interprets the anatomical basis of the disease presentations.

AN-AHS-CO4: Knows about the General development of human body.

AN-AHS-CO5: Outlines the knowing of the hard & soft structures of the body.

UNIT	TITLE	THEORY + TUTORIALS (80 + 32)HOURS
I	**(a) INTRODUCTION TO HUMAN BODY AS AWHOLE** • Terms of location, positions and planes • Cell and its organelles • Epithelium – Definition, classification, description with examples and functions. • Glands–Classification, description of Serous and Mucous glands with examples. • Basic tissues – Classification with examples. **(b) LOCOMOTION ANDSUPPORT** • Cartilage – Different types with examples and Histology. • Bone – Classification, Names of bone cells, parts of Long bone, Microscopy of Compact bone, Names of all bones, Vertebral column, Intervertebral disc, Fontanelles of Fetal Skull. • Joints–Classification of Joints with examples, Synovial Joints (in detail for Medical Imaging Technology students) • Muscular system: Classification of Muscular tissue and histology. • Names of the muscles of the body.	20 + 8
II	**UNIT (a) CARDIO VASCULAR SYSTEM** • Heart Size, Location, Chambers – Exterior & Interior – conducting System and Valves • Blood supply of heart • Systemic & Pulmonary circulation • Branches of Aorta, Common Carotid artery, Subclavian artery, Axillary artery, Brachial artery, Superficial Palmar arch, Femoral artery and Internal Iliac artery. • Peripheral pulse • Inferior Venacava, Portal vein and Porto systemic anastomosis. • Great Saphenous vein • Dural Venous Sinuses • Lymphatic System – Cisterna Chyli and Thoracic duct. • Names of regionally mphatics, axillary and inguinal mph nodes in brief. **(b) RESPIRATORYSYSTEM** • Parts of Respiratory System, Nose, Nasal Cavity, Larynx, Trachea, Lungs, Broncho pulmonary segments • Histology of Trachea, Lung and Pleura • Names of Para nasal air sinuses	20 + 5
III	**(a) GASTRO- INTESTINAL SYSTEM – (10 +5hrs)** • Parts of GIT, Oral cavity (Tongue, Tonsil, Dentition, Pharynx, Salivary glands, Waldeyer‘s ring) • Oesophagus, Stomach, Small & Large Intestine, Liver, Gall Bladder, Pancreas **(b) URINARY SYSTEM - – (5hrs)** • Kidney, Ureter, Urinary bladder, Male & Female Urethra	10 + 5

IV	**(a) REPRODUCTIVE SYSTEM – (10 +2hrs)** • Parts of Male Reproductive system, Testis, Vas deferens, Epididymis, Prostate • Parts of Female Reproductive System, Uterus, Fallopian tubes, Ovary • Mammary gland **(b) ENDOCRINE GLANDS - (5hrs)** • Names of all Endocrine glands in detail on Pituitary Gland, Thyroid Gland, Parathyroid gland and Suprarenal Gland.	10 + 5
V	**NERVOUS SYSTEM – (15 +2 hrs)** • Cerebrum, Cerebellum, Mid brain, Pons, Medulla Oblongata, Spinal cord with spinal nerve • Meninges, Ventricles and Cerebrospinal fluid • Names of Basal nuclei • Blood Supply of Brain • Cranial Nerves	10 + 5
VI	**(a) EMBRYOLOGY** • Spermatogenesis and Oogenesis • Ovulation, Fertilization • Fetal Circulation • Placenta **(b) COURSE SPECIFICTOPICS** • Skin • Eye • Arterial System and Venous Drainage System in detail	10 + 4

LAB TRAINING (40 hrs)

- Histology of Types of Epithelium
- Histology of Serous, Mucous and Mixed Salivary gland
- Histology of the types of Cartilage
- Demo of all bones showing parts, radiographs of normal bones &Joints
- Histology of Skeletal (TS & LS), Smooth and Cardiac muscle
- Demonstration of Heart and Vessels of the body
- Histology of Large artery, Medium sized artery and vein, Large Vein
- Microscopic appearance of Large and Medium sized Artery and Vein, Large Vein
- Demonstration of all muscles of the body
- Pericardium
- Histology of Lymph node, Spleen, Tonsil and Thymus
- Demonstration of parts of Respiratory system
- Normal Chest radiograph showing Heart shadows
- Histology of Lung and Trachea
- Normal Angiograms
- Histology of Lymphatic tissues
- Radiographs of Abdomen – IVP, Retrograde cystogram
- DemonstrationofpartsoftheUrinarysystemandHistologyofKidney,Ureter and Urinary bladder

- Demonstration of Male and Female Pelvis with organs in situ.
- Histology of Male and Female Reproductive organs
- Histology of Pituitary, Thyroid, parathyroid and Suprarenal glands
- Histology of peripheral nerve and optic nerve.
- Demo of all parts of brain

METHODS OF TEACHING

- Lecture cum discussion
- Demonstration
- Lab visit
- Practical work record

METHODS OF EVALUATION

- Written Test
- Laboratory observation Book
- Assignments
- Oral Presentations

REFERENCE BOOKS

- Cohen, Memmler: Structure & Function of Human Body, Lippincott Williams & Wilkins; Tenth edition(2012)
- Waugh: Ross & Wilson Anatomy & Physiology in health and illness Penguin Books Ltd(2010)
- Tortora: Anatomy & Physiology, John Wiley & Sons(2012)

B.Sc. ALLIED HEALTH SCIENCES – ANATOMY - BLUE PRINT

Unit No.	Unit	Weightage	Marks Allotted	Knowledge / Recall			Understanding			Application		
				LAQ	SAQ	VSAQ	LAQ	SAQ	VSAQ	LAQ	SAQ	VSAQ
1	I	14 %	12	…	1	1	---	---	1	---	---	---
2	II	20 %	16	1		1	1*		----	---	---	1
3	III	20 %	15	1*	1	1	--	1	----	---	---	1*
4	IV	20 %	16	--	--	1	1	1*	1*	---	----	1
5	V	14 %	12	---	1	---	---	--	1	---	---	1
6	VI	12 %	9	---	1	---	---	--	1	---	---	--

LONG ANSWER QUESTIONS

S.No	Unit wise	Type of Question	Question has to ask
1	CVS / Respiratory System / GIT	Knowledge / Understanding	2
2	Urinary system / Reproductive system / Endocrine system	Knowledge / Understanding	2

SHORT ANSWER QUESTIONS

S. No	Unit wise	Type of Question	Question has to ask
1	Unit - I	Recall	1
2	Unit - II	Understanding	-
3	Unit – III	Understanding + Recall	2
4	Unit – IV	Understanding / Recall	1
5	Unit – V	Understanding	1
6	Unit – VI	Understanding / Recall	1

VERY SHORT ANSWER QUESTIONS

S.No	Unit wise	Type of Question	Question has to ask
1	Unit – I	Understanding / Recall	2
2	Unit – II	Understanding + Recall	2
3	Unit – III	Understanding + Recall + Application	2
4	Unit – IV	Understanding + Recall + Application	3
5	Unit – V	Understanding + Application	2
6	Unit – VI	Understanding / Application	1

The duration of Examination (University) is Three (3) hours.

The total marks for the University Examination will be 100 marks.

Long Answer Questions : 2 X 10 = 20 marks (Choice 2 out of4)

Short Answer Questions : 5 X 6 = 30 marks (Choice 5 out of 6)

Very Short Answer Questions : 10 X3 = 30 marks (Choice 10 out of 12)

TOTAL = Theory 80 + IA 20 = 100marks

MODEL QUESTION PAPER
FIRST YEAR B.Sc. ALLIED HEALTH SCIENCES
ANATOMY

Time:3 Hours **Maximum Marks:80**

Illustrate your answers with suitable diagrams where ever necessary.

LONG ANSWER QUESTIONS – (**Write any Two**) (**2 X 10 =20)**

1. (A) Explain the Gross features of Right atrium. **(OR)**
   (B) Explain the Gross features of Stomach.
2. (A) Explain the Gross features of Kidney. **(OR)**
   (B) Explain the Gross features of Thyroid gland.

SHORT ANSWER QUESTIONS - (Write any Five) **(5 x 6=30)**

1. Discuss the Classification of joints with its examples.
2. Discuss the boundaries and contents of superior Mediastinum.
3. Discuss the gross features of Right lung.
4. Discuss the external & internal features of 2nd part of Duodenum.
5. Discuss the location, external features of urinary bladder.
6. Discuss the supports of uterus.

VERY SHORT ANSWER QUESTIONS - (Write any Ten) **(10 x3 =30)**

1. Write a note on Sesamoid bone.
2. Trace the conducting system of Heart.
3. List out the paranasal air sinuses.
4. Write a note on Pancreatic duct.
5. List out the parts & functions of extra hepatic biliary apparatus.
6. Write a note on Trigone of urinary bladder.
7. Enumerate the Ovarian follicles.
8. Enumerate the hormones of Adrenal gland.
9. Enumerate the layers of Scrotum.
10. List out the meningeal layers & its modifications.
11. Structure of thin skin.
12. Write a note on Fertilization

PHYSIOLOGY

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES – PHYSIOLOGY

NAME OF THE SUBJECT PAPER	**: PHYSIOLOGY**
DURATION OF THEORY CLASSES	**: 80 Hrs**
DURATION OF TUTORIAL SESSIONS	**: 32 Hrs**
DURATION OF LAB TRAINING	**: 38 Hrs**
THEORY EXAMINATION	**: 100 Marks (80 U + 20IA)**
UNIVERSITY PRACTICAL EXAMINATION	**: NIL**
DURATION OF THEORY EXAMINATION	**: 3 Hrs**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: I YEAR**

COURSE DESCRIPTION

The course is designed to assist students to acquire the knowledge of the normal physiology of various human body systems and understand the alternation in physiology in disease and practice of accident and emergency care technology

COURSE OBJECTIVES

At the end of the course, the student will be able to

- Describe the physiology of cell, tissues, membranes and glands.
- Describe the physiology of blood and functions of heart.
- Demonstrate blood cell count, coagulation, grouping, Hb; BP and Pulse monitoring
- Describe the physiology and mechanism of respiration.
- Demonstrate Spirometry
- Describe the physiology of Excretory system

COURSE OUTCOMES FOR PHYSIOLOGY

At the end of the course, students will be able to...

PHY-AHS-CO1: Understand normal structure and functioning of the organs and organ systems of the body

PHY-AHS-CO2: Understand the regulatory mechanisms in normal and physiological variations.

PHY-AHS-CO3: Understand age-related physiological changes in the organ functions that reflect normal growth and development.

PHY-AHS-CO 4: Understand the physiological basis of diseases.

PHY-AHS- CO 5: Interpret laboratory data pertaining to normal function of organ and organ system.

UNIT	TITLE	THEORY + TUTORIALS (80+32) HOURS
I	**a. General physiology (5 + 2hrs)** • Structure and functions of cell and cell organelles • Transport across cell membrane • Homeostasis: definition and feedback mechanisms **b. Hematology (10 + 2hrs)** • Composition and function of blood and body fluids • Plasma proteins and their functions • RBC: morphology, production, functions and fate • Anemia: etiological & morphological classification • Immunity : Types, mechanism of immune response • Hemostasis and anticoagulants • Blood groups: Types, cross matching and clinical importance	15 +4
II	**Cardiovascular physiology (10 + 5 hrs)** • Functional anatomy • Conductive system of heart: origin, spread of cardiac impulse • Properties of cardiac muscle • ECG: leads, principles of normal recording. Normal waves and interpretations • Cardiac cycle • Heart sounds, Physiological basis of murmur • Cardiac output: definition, factors affecting, factors regulating and its measurement • Blood pressure: total pressure, lateral pressure, importance of different pressure, measurements, factors controlling BP • Shock: definition &types.	10 + 5
III	**Respiratory physiology (10 + 5 hrs)** • Functional anatomy • Mechanism of respiration • Lung volumes and capacities: definition, normalvalues, measurements and clinical importance • Transport of gases: oxygen and carbon dioxide • Control of respiration: neural and chemical regulation. • Dyspnoea, Asphyxia, cyanosis, periodic breathing • Hypoxia : definition and types	10 + 5
IV	**a. Gastro-intestinal physiology (5 hrs)** • GI secretions: saliva, gastric juice, pancreatic juice, liver& gallbladder • GI motility: deglutition, gastric motility and emptying,	15 + 3

	intestinal motility • GI hormones: Gerstein, Secretin, CCK – PZ, motilin, Inhibin **b. Renal physiology (10 + 3 hrs)** • Nephrons: structure, types and functions • Juxta glomerular apparatus • RBF: definition, normal values, factor affecting • GFR: definition, normal values factor affecting and factors regulating, measurement. • Renal handlings of solutes : Na+ , Cl- ,Glucose, water (diuretics, diuresis), H+, ammonia • Renin-angiotensin- aldosterone mechanism • Concentration of urine – countercurrent multiplier and countercurrent exchanger. • Micturition • Renal dialysis	
V	**a. Endocrine physiology (10 + 3hrs)** • Pituitary gland: hormones secreted and their functions, applied: dwarfism, gigantism, Diabetes Insipitus. • Thyroid gland: hormones secreted and their functions, applied: hypothyroidism, hyperthyroidism • Parathyroid gland: hormones secreted and their functions • Adrenal gland: hormones secreted and their functions • Pancreas: hormones secreted and their functions, applied: Diabetes Mellitus **b. Reproductive physiology (5 + 2hrs)** • Male reproductive system: spermatogenesis ,endocrine functions of testis • Female reproductive system: oogenesis, ovulation, functions of estrogen and progesterone. • Menstrual cycle: ovarian cycle, uterine cycle, hormonal changes, abnormalities of menstruation • Contraception	15 + 5
VI	**a. Nerve-Muscle physiology (5 + 5 hrs)** • Neurons: structure, types, properties, degeneration and regeneration • Neuromuscular junction: transmission of impulse and its clinical applications • Skeletal muscle: structure , muscle proteins, contraction& relaxation, types of contraction **b. Central nervous system (5 + 3hrs)** • Organization of nervous system • Synapse: types, functions • CSF :functions • Cerebral cortex: Broca`s area and their functions • Cerebellum: lobes &function • Basal ganglia: nucleus & functions, Parkinsonism	15 + 10

	• Hypothalamus: functions **c. Special senses (5 + 2 hrs)** • Vision: Errors of refraction, visual pathway and effects of lesion • Hearing: functions of middle ear, Conductive deafness and nerve deafness. • Smell and taste: receptors and pathways	

LAB TRAINING (38 hrs)

- Hemoglobinometry
- White Blood Cell Count
- Red Blood Cell Count
- Determination of Blood Groups
- Leishman's Staining and Differential WBC Count
- Determination of Packed Cell Volume
- Erythrocyte Sedimentation Rate(ESR)
- Determination of Clotting Time, Bleeding Time
- Recording of Blood pleasure
- Auscultation for Heart sounds
- Artificial Respiration
- Determination of Vital capacity.

METHODS OF TEACHING

- Lecture cum discussion
- Demonstration
- Lab visit
- Practical work record

METHODS OF EVALUATION

- Written Test
- Laboratory observation Book
- Assignments
- Oral Presentations

REFERENCE BOOKS

1. Basics of Medical Physiology D.Venkatesh /H.H.Sudhakar Wolters Kluwer Third Edition.
2. Waugh: Ross & Wilson Anatomy & Physiology in health and illness Penguin Books Ltd (2010).
3. Principles of Physiology, Singh (H).

PHYSIOLOGY - BLUEPRINT

Unit	Systems	Marks	Weightage (%)	Question type		
				LAQ (2 out of 4)	SAQ (5 out of 6)	VSAQ (10 out of 12)
I	General physiology	15	19%			2+1*
	Hematology			1*	1	1
II	Cardiovascular physiology	16	20%	1	1	
III	Respiratory physiology	16	20%	1	1	
IV	Gastro-intestinal physiology	12	15%		1	1+1*
	Renal physiology			1*		1
V	Endocrine physiology	12	15%		1	1
	Reproductive physiology					1
VI	Nerve-Muscle physiology	09	11%			1
	Central nervous system				1*	1
	Special senses					1
Note: * represents question of choice						

- The duration of Examination (University) is Three (3) hours.
- The total marks for the University Examination will be 100marks.

  Long Answer Questions : 2 X 10 = 20 marks (Choice 2 out of4)

  Short Answer Questions : 5 X 6 = 30 marks (Choice 5 out of 6)

  Very Short Answer Questions : 10 X3 = 30 marks (Choice 10 out of 12)

  TOTAL = Theory 80 + IA 20 = 100mark

MODEL QUESTION PAPER
FIRST YEAR B.Sc. ALLIED HEALTH SCIENCES
PHYSIOLOGY

Total marks: 80 **Duration: 3hours**

LONG QUESTION ANSWER **(2 X 10 =20)**

1. a) Define Erythropoiesis? Describe its stages. Mention the factors influencing it. **(OR)**
   b) Define blood pressure. Write its normal range. Briefly explain short term regulation mechanism of blood pressure.
2. a) Explain how oxygen is transported in blood. Explain oxygen dissociation curve. List the factors shifting this curve to right&left. **(OR)**
   b) Define Glomerular filtration rate (GFR). Write its normal value. Explain the factors affecting it.

SHORT QUESTION ANSWER – Answer any 5 **(5 X 6 =30)**

1. Define hemostasis. Briefly explain blood clotting mechanism.
2. Define cardiac output. Give its normal value. Describe the factors regulating it
3. Draw normal spirogram indicating static lung volumes and capacities.
4. Briefly explain the mechanism of HCl secretion in stomach.
5. Name the anterior pituitary hormones. Briefly explain functions of growth hormones.
6. Briefly describe stages of Spermatogenesis.

VERY SHORT ANSWER – Answer any 10 **(10 X 3=30)**

1. Write the functions of Golgi apparatus
2. Briefly explain osmosis
3. Briefly describe the function of Na^+ K^+ ATPase pump
4. What are anticoagulants? Name any two.
5. Write any 3 functions of saliva
6. Name any two GI hormones. Write any one function of them.
7. Name the cells of Juxta glomerular apparatus & mention their function
8. List the 3 functions of thyroid hormone
9. Name natural contraceptive methods
10. Classify muscle proteins
11. Classify glial cell. Write any two functions of it.
12. What is myopia? How it is corrected

BIOCHEMISTRY

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES – BIOCHEMISTRY

NAME OF THESUBJECTPAPER	**: BIOCHEMISTRY**
DURATION OF THEORY CLASSES	**: 80hrs**
DURATION OF TUTORIAL SESSIONS	**: 32hrs**
DURATION OF LAB TRAINING	**: 38Hrs**
THEORY EXAMINATION	**: 100 marks (80 U + 20IA)**
UNIVERSITY PRACTICAL EXAMINATION	**: Nil**
DURATION OF THEORY EXAMINATION	**: 3 hrs**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: I YEAR**

COURSE DESCRIPTION

The course is designed to assist students to acquire the knowledge of the normal biochemical functioning of human body and alterations.

OBJECTIVES

At the end of the course, the student will be able to

1. Identify the basic principles of biochemistry.
2. Synthesize the knowledge of these principles in various situations.

COURSE OUTCOMES FOR BIOCHEMISTRY

At the end of the course, students will be able to...

BIO-AHS-CO1: Correlate the integration of various aspects of biomolecules and its lab diagnosis

BIO-AHS-CO2: Explain biochemical basis and rationale of clinical laboratory tests for inborn errors of metabolism, and interpret the results.

BIO-AHS-CO3: Correlate the results of these investigations with the primary disorders of each human body system.

BIO-AHS-CO4 Follow good clinical laboratory practice as well as to handle the biological samples collected

BIO-AHS-CO5: Learn how to collect the samples and to process it for diagnostic purposes

UNIT	TITLE	THEORY + TUTORIALS (80 +32) HOURS
I	**(i) INTRODUCTION TO BIOCHEMISTRY** • Biophysical aspects of Biochemistry: Theory of acids and bases, Ionization of acids, Dissociation of water, Hydrogen ion concentration and concept of pH, Dissociation of acids and bases, Basic concepts in Acidosis and Alkalosis (Respiratory and Metabolic) • Concept of buffering, Definition of buffers and Buffering Capacity, Chemical and Physiological buffers, Henderson Hassel Balch equation and pH – pK relationship, • Glass electrode and determination of pH, Acid Base titration. **ii) PROTEINS** • Proteins: Chemistry, Classification, properties and biomedical importance of Proteins. • Hydrolytic products of proteins • Classification of Amino acids and important properties **iii) ENZYMES** • Definitions of Catalyst, Enzymes, Apo enzyme, Coenzyme, Holoenzyme, Cofactors and prosthetic group • Active site • Systematic classification of Enzymes • Factors influencing Enzyme kinetics • Enzyme units	18 + 6
II	**i) CARBOHYDRATES** • Carbohydrates: Chemistry, Classification, properties and biomedical importance of carbohydrates. **ii) NUCLEOPROTEINS** • Purine and Pyrimidine bases • Ribose and Deoxy Ribose • Definition of Nucleosides and Nucleotides • Structure of DNA • Types of RNA • Biologically significant Nucleotides	15 + 5
III	**LIPIDS** • Definition of Fats and Oils • Classification of Lipids • Saturated and Unsaturated Fatty acids • Properties of Lipids • Biomedical importance of Lipids with special reference to Phospho Lipids, Glycolipids and Cholesterol.	15 + 7
IV	**ENGERY METABOLISM AND NUTRITIONAL BIOCHEMISTRY** • Calorific value, Respiratory Quotient, Resting Metabolic expenditure, Specific dynamic action • Energy requirements • Complex Carbohydrates and Role of Dietary fiber • Essential Fatty acids • Essential amino acids	20 + 6

	• Positive and Negative Nitrogen balance • Protein Energy Malnutrition • Biochemical functions of Vitamins • Biochemical functions of major and trace elements	
V	**(i) CLINICAL CHEMISTRY** • Serum Osmolality: Significance and measurement • Electrophoresis: Principles, Methodology and Diagnostic significance • Principles and applications of Patrician Chromatography • Simple tests to identify Carbohydrates, Lipids and Proteins in biological fluids • Qualitative estimation of Glucose, Proteins, Cholesterol, Urea, Creatinine and Uric acid and their diagnostic significance **(ii) ENVIRONMENTALCHEMISTRY** • Definition of Pollutants • Impact of Terrestrial, Water and air pollutants • Bio pesticides Chemistry, Metabolic Transformation in the living system and role in Chemical Pathology • Influence of Non-Biodegradable domestic utility items and its role in metabolic disorders • Carcinogens and mutagens: qualitative and molecular pathology involved in mutagenesis and carcinogenesis • Plastics and its impacts on Society • Biomedical Waste and its management	12 + 8

LAB TRAINING (38 hrs)

- Simple Color reactions of Carbohydrates and Proteins
- Qualitative estimations of Glucose, Urea, Creatinine, Total Protein and Cholesterol
- Normal constituents of Urine
- Abnormal(pathological)Urine
- Glucose Tolerance Test and its significance
- Demonstration of Electrophoresis and Interpretation of important clinical conditions based on Electrophoresis appearance
- Demonstration of Paper Chromatography and its utility in the diagnosis of inborn errors of metabolism

METHODS OF TEACHING

1. Lecture cum discussion
2. Demonstration
3. Lab visit
4. Practical work record

METHODS OF EVALUATION

1. Written Test
2. Laboratory observation Book
3. Assignments
4. Oral Presentations

REFERENCE BOOK

1. Essential of Biochemistry for B.Sc. Nursing Students Harbanslal, first edition.
2. Biochemistry U.Sathya Narayana, U.Chakrapani, fifth edition

B.Sc. ALLIED HEALTH SCIENCES – BIOCHEMISTRY (I Year) BLUE PRINT

Unit No.	Weightage	Marks Allotted	Knowledge/ Recall			Understanding			Application		
			LAQ (10)	SAQ (6)	VSAQ (3)	LAQ (10)	SAQ (6)	VSAQ (3)	LAQ (10)	SAQ (6)	VSAQ (3)
I	30 %	25		1	1	1	1				
II	20%	19	1		2			1			
III	15%	12	1*	1	2						
IV	15 %	9	1*	1*	2			1			
V	20%	15		1	1 + 1*		1	1*			

The duration of Examination (University) is Three (3) hours.
The total marks for the University Examination will be 80 marks.

Long Answer Questions : 2X 10 marks = 20 marks (Choice 2 out of 4)

Short Answer Questions : 5X 6 marks = 30 marks (Choice 5 out of 6)

Very Short Answer Questions : 10 X 3 marks = 30 marks (Choice 10 out of12)

TOTAL = Theory 80 + IA 20 =100marks

MODEL QUESTION PAPER
FIRST YEAR B.Sc. ALLIED HEALTH SCIENCES
BIOCHEMISTRY

TIME: 3 HOURS **MAXIMUM MARKS:80**

A. Long answer question **(2 X10=20)**

1. a) Write in detail about the Hetero polysaccharides and mention its importance.

(Or)

b) How is acid base balance maintained in the body?

2. a) Define and classify Lipids with suitable examples.

(Or)

b) Write in detail about the RDA, dietary sources, and biochemical role and deficiency manifestations of folic acid.

B. Short answer questions -Answer any 5 questions **(5X 6=30)**

1. Mention dietary sources and functions of cholesterol
2. Define Chromatography & write any4applications
3. Classify Carbohydrates with a suitable example
4. Classify Enzymes systematically by providing one example under each class.
5. Define carcinogen and name any three agents that cause carcinogenesis.
6. List down the sources, regulation and functions of Calcium

C. Very Short answer questions –Answer any10 questions **(10 x 3=30)**

1. Define Respiratory quotient
2. Define buffer
3. List any two functions of trace elements.
4. List any two impacts of plastics on society
5. Mention the essential fatty acids and its importance
6. List any 2 functions of phospholipids
7. Name one test to identify plasma proteins and urea.
8. Define osmolality
9. Mention any one cardiac glycoside with its function
10. Draw a neat labeled diagram of DNA
11. Define mutarotation
12. List any two functions of Fat soluble vitamin

GENERAL MICROBIOLOGY

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES – GENERAL MICROBIOLOGY

NAME OF THE SUBJECT PAPER	**: GENERAL MICROBIOLOGY**
DURATION OF THEORY CLASSES	**: 40 hrs**
DURATION OF TUTORIAL SESSIONS	**: 16 hrs**
DURATION OF LAB TRAINING	**: 38 Hrs**
EXAMINATION	**: 50 marks (40 U+10 IA)**
NO UNIVERSITY PRACTICAL EXAMINATION	
DURATION OF THEORY EXAMINATION	**: 1 ½ hrs**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: I YEAR**

COURSE DESCRIPTION

The course is designed to assist students to acquire understanding of fundamentals of microbiology and identification of microorganisms. It also provides opportunities for practicing infection control measures in hospital setting.

COURSE OBJECTIVES

At the end of the course, the student will be able to:

1. Identify common disease producing microorganisms
2. Explain the basic principles of microbiology and their significance in health and disease. Demonstrate skill in handling specimens.
3. Explain various methods of disinfection and sterilization
4. Identify the role of the nurse in hospital infection control system.

COURSE OUTCOMES FOR GENERAL MICROBIOLOGY

At the end of the course, students will be able to...

MIC-AHS-CO1: Sterilize the articles with physical and chemical methods

MIC-AHS-CO2: Perform with suitable culture media, methods for growth of the bacteria and perform staining techniques for identification of bacteria

MIC-AHS-CO3: Learn the structure, function of immune system and immunity by its antigen-antibody reactions

MIC-AHS-CO4: Learn the how to collect & process the specimen for the diagnostic purposes

MIC-AHS-CO5: Learn about the identification of fungal infections from clinical specimens and various antifungal agents used for the fungal infections.

MIC-AHS-CO6: Learn the laboratory diagnosis of Parasitic and Viral infections

MIC-AHS-CO7: Learn about the treatment and post exposure prophylaxis (PPE) of viral infections

UNIT	TITLE	THEORY + TUTORIALS (40 +16) HOURS
I	**GENERAL BACTERIOLOGY** ▫ Historical introduction Classification of Microorganisms based on size, shape and structure ▫ Anatomy & Physiology of Bacteria : Nutrition, Growth ▫ Microscopy, staining techniques & Culture media, culture methods ▫ Sterilization (physical &chemical methods) Infection	8 +2
II	**IMMUNOLOGY** ▫ Immune response ▫ Immunity ▫ Hyper sensitivity, Autoimmunity ▫ Complement ▫ Antigen antibody reactions	7 + 2
III	**SYSTEMATIC BACTERIOLOGY** ▫ Introduction : Collection transport & processing of bacteriological clinical specimen in general ▫ Pyogenic cocci ▫ Spore baring bacilli Clostridium +Bacillus ▫ Enterobacteriaceae- E.coli, Klebsiella, Salmonella, Shigella ▫ Vibrio, Pseudomonas **MYCOLOGY** ▫ Introduction, classification of fungi, laboratory diagnosis in general ▫ Fungi of medical importance-Opportunistic fungi	8 + 3
IV	**BASICS OF PARASITOLOGY** ▫ Introduction to Parasitology, Classification, Protozoa-I – Entamoeba histolytica ▫ Protozoa-II, Plasmodium spp. ▫ Cestodes: general, T.solium&T.saginata, E.granulosus ▫ Nematodes: Introduction &Classification - Intestinal -Ascaris, Ancylostorma, Strongyloides - Tissue-W.bancrofti	7 +3
V	**VIROLOGY** ▫ Classification & General properties of Viruses, Virus Host interactions & Lab diagnosis in general ▫ DNA Viruses : Pox viruses &Adenoviruses, Herpes viruses ▫ Hepatitis virus, HIV ▫ Rabies , Polio, Arbo viruses common in India – Dengue, Chickenkuniya , Japanese encephalitis, KFD	6 + 4
VI	**HOSPITAL INFECTION AND CONTROL** ▫ Causative agents and methods of transmission ▫ Systematic investigation of hospital infection ▫ Prevention and control of Hospital infections ▫ Environmental Hazards resulting from biomedical waste and preventive measures.	4 + 2

LAB TRAINING (38 hrs)

- Introduction & visit to microbiology lab + Morphology of bacteria + Identification of bacteria (Culture plates & Basic biochemical reactions)
- Gram stain, Acid fast Stain
- Spotters , Instruments, Culture media inoculated &un inoculated
- Applied Immunology(Bacterial)
- Serological tests – CRP, ASO, RPR, Widal Applied Immunology (Virology) Serological tests: HIV, HBsAg(Rapid Tests)
- Stool Examination for eggs + Parasitology specimens

METHODS OF TEACHING

1. Lecture cum discussion
2. Demonstration
3. Lab visit
4. Practical work record

METHODS OF EVALUATION

1. Written Test
2. Laboratory Observation Book
3. Assignments
4. Oral Presentations

REFERENCE BOOKS

1. Ananthnarayan R: Textbook of Microbiology.(2017)
2. Pommerville J. C: Fundamentals of Microbiology. Jones and Bartlett learning(2013)
3. ApurbaSastry, SandhyaBhat. Essentials of Microbiology.
4. Text book of Concise Microbiology by C.P.Baveja, Latest edition

BLUE PRINT - B.Sc ALLIED HEALTH SCIENCES –GENERAL MICROBIOLOGY (I Year)

Unit No.	Unit	Weightage (%)	Marks Allotted	Knowledge/ Recall			Understanding			Application		
				LAQ (10)	SAQ (6)	VSAQ (3)	LAQ (10)	SAQ (6)	VSAQ (3)	LAQ (10)	SAQ (6)	VSAQ (3)
I	GENERAL BACTERIOLOGY	8	3	1*								1
II	BASICS OF IMMUNOLOGY	15	6			1*		1				
III	SYSTEMATIC BACTERIOLOGY	25	10				1				1*	
IV	BASICS OF PARASITOLOGY& MYCOLOGY	22	9					1				1
V	VIROLOGY	22	9		1							1
VI	HOSPITAL INFECTION AND CONTROL	8	3		1*				1			
	TOTAL	**100**	**40**									

The duration of Examination (University) is One and Half (1 ½) hours.
The total marks for the University Examination will be 40marks.

Long Answer Questions	: 1X10mark	= 10 marks (Choice 1 out of2)
Short Answer Questions	: 3X6marks	= 18 marks (Choice 3 outof5)
Very Short Answer Questions	: 4 X3 marks	= 12marks (Choice 4 out of5)
TOTAL	= 40 marks	

MODEL QUESTION PAPER
FIRST YEAR B.Sc. ALLIED HEALTH SCIENCES
GENERAL MICROBIOLOGY

Time: 1½Hours **Maximum Marks: 40**

Illustrate your answers with suitable diagrams wherever necessary.

(A) Long answer questions **(1 X 10=10)**

1. Describe the commonly used chemical disinfectants and their applications in the hospital.

(OR)

2. Classify Mycobacterium. Give an account on pathogenesis and laboratory diagnosis of pulmonary tuberculosis. Add a note on BCG vaccine.

(B) Short answer questions -Answer any 3 questions marks **(3 X6=18)**

1. Define immunity. Describe acquired immunity.
2. Types of HAI & mention the causative agents.
3. Name the UTI cause bacteria. How to collect urine & laboratory diagnosis of *E.coli*.
4. Life cycle of malaria parasite in human.
5. Write about Modes of transmission of HIV.

(C) Very Short answer questions –Answer any 4 questions **(4 x3 =12)**

1. Mention different color coded bags for biological waste management used in hospital with the viruses.
2. Prophylaxis of hepatitis B.
3. List FOUR bacteria causing wound infection.
4. Name the opportunistic fungi.
5. Name four arbo viral diseases common in India.

GENERAL PATHOLOGY

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES – GENERAL PATHOLOGY

NAME OF THE SUBJECT PAPER : GENERAL PATHOLOGY

DURATION OF THEORY CLASSES : 40hrs

DURATION OF TUTORIAL SESSIONS : 16hrs

DURATION OF LAB TRAINING : 38Hrs

EXAMINATION : 50 marks (40 U + 10IA)

NO UNIVERSITY PRACTICAL EXAMINATION

DURATION OF THEORY EXAMINATION : 1 ½hrs

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT : IYEAR

COURSE DESCRIPTION

To make the student to understand pathology laboratory reports, the normal ranges of investigations, severity and specificity of disease conditions which will help him perform International Classification of diseases to clinical pertinence.

COURSE OBJECTIVES

On completion of this subject, the student will be able to:

- Differentiate between symptoms and diseases
- Understand the needs of mandatory diagnostic procedures
- Demonstrate an understanding of the pathology of common diseases
- Understand various pathology laboratory reports
- Know about the possibilities and consequences of nosocomical infections, needle prick injuries etc., in a health care facility

COURSE OUTCOMES FOR GENERAL PATHOLOGY

At the end of the course, students will be able to...

PAT-AHS-CO1: Learns the pathophysiology of disease and its causes and progression

PAT-AHS-CO2: Learns the etiologies, the pathogenesis, and the host response specific to a particular organ system

PAT-AHS-CO3: Learn about lab investigations and techniques in Hematology.

PAT-AHS-CO4: Learns to perform cross matching, coombs test, blood grouping and TTI

PAT-AHS-CO5: Learns the diagnosis of disease based on the laboratory analysis of bodily fluids

UNIT	TITLE	THEORY + TUTORIALS (40 +16) HOURS
I	**GENERAL PATHOLOGY (12 +3 HOURS)** Basic Concepts in Cellular Adaptions • Cell injury and Cell death • Over view of Cellular adaption Basic Principles in Inflammatory Process • General features of acute and Chronic inflammation repair. • NEOPLASIA • Definition of Neoplasia • Differences between Benign and Malignant tumors • Nomenclature	10 + 5
II	**HAEMATOLOGY** **Structure and functions of Blood cells** • Objective use of anticoagulants • Mechanisms of Haemostasis • Tests to monitor Coagulation • Blood Grouping and Blood Bank (Basic aspects on Blood Components) • Basic concepts in Anemia • Basic Concepts of Leukemia	10 + 3
III	**BIOMEDICAL WASTE MANAGEMENT AND ENVIRONMENTAL PATHOLOGY** • Biomedical waste management from perspectives of Pathology • Environment and Disease – Smoking hazards, Asbestosis and Silicosis Occupational Exposure	5 + 2
IV	**CLINICAL PATHOLOGY** • Collection, transport, preservation and processing of Clinical Specimen • Clinical Pathology of specialized Body Fluids(CSF), Synovial fluid, Pleural Fluid • Urine Examination(Urinalysis)	5 + 2
V	**OVERVIEW OF SYSTEMIC PATHOLOGY** • Rheumatic Heart Disease ineffective endocarditic, atherosclerosis, IHD – Basic Concepts. • Lungs : Pneumonia, COPD, Asthma, ARDS – Basic Concepts • Gastrointestinal tract – Peptic Ulcer, Carcinoma Stomach, Carcinoma Colon –Basic Concepts. • Liver: Hepatitis, Cirrhosis, Gall Bladder –basic	10 + 4

	Concepts. • Brain Tumor. • Kidney – Renal Calculi, Hydronephrosis, renal Tumor – Basic Concepts. • FGT – Leiomyoma, Endometrial hyperplasia, Endometrial Cancer, Cervical Cancer –Basic Concepts. • FGT – Ovarian Tumor classifications – Basic Concepts. • Breast – Benign and Malignant tumors – Basic Concepts • Bone Tumors – Basic Concepts	

LAB TRAINING (38 hrs)

1. Blood Grouping and Rh typing
2. Urine Routine
3. Hb, TLC,DLC
4. Gross Specimens
5. Slides

METHODS OF TEACHING

1. Lecture cum discussion
2. Demonstration
3. Lab visit
4. Practical work record

METHODS OF EVALUATION

1. Written Test
2. Laboratory observation Book
3. Assignments
4. Oral Presentations

REFERENCE BOOK

1. Culling Histopathology techniques
2. Bancroft Histopathology techniques
3. Todd & Sanford Clinical Diagnosis by laboratory method
4. Dacie & Lewis – Practical Haematology
5. RamanicSood, Laboratory Technology (Methods and interpretation) 4thEd.

B.Sc. ALLIED HEALTH SCIENCES – PATHOLOGY (I Year)-BLUE PRINT

Unit No.	Unit	Weightage	Marks Allotted	Knowledge/ Recall			Understanding			Application		
				LAQ (10)	SAQ (6)	VSAQ (3)	LAQ (10)	SAQ (6)	VSAQ (3)	LAQ (10)	SAQ (6)	VSAQ (3)
I	a) BASIC CONCEPTS IN CELLULARADAPTIONS b) BASIC PRINCIPLES IN INFLAMATORY PROCESS c) NEOPLASIA	37.5%	15	1*	2	1	-	1*	1*	-	-	-
II	HAEMATOLOGY	22.5%	9	-	1	1	-	-	-	-	-	-
III	BIOMEDICAL WASTE MANAGEMENT AND ENVIRONMENTAL PATHOLOGY	7.5%	3	-	-	-	-	-	1	-	-	-
IV	CLINICAL PATHOLOGY	7.5%	3	-	1*	1	-	-	-	-	-	-
V	OVERVIEW OF SYSTEMIC PATHOLOGY	25%	10	1	-	-	-	-	-	-	-	-

The Duration of Examination (University) is One and Half hours (1 ½) hours.

The total marks for the University Examination will be 40 marks.

Lon Answer Questions	: 10X1marks	= 10 marks (Choice 1 out of 2)
Short Answer Questions	: 3 X6marks	= 18 marks (Choice 3 out of5)
Very Short Answer Questions	: 4 X3marks	= 12 marks (Choice 4 out of5)
TOTAL		= 40 marks

MODEL QUESTION PAPER
FIRST YEAR B.Sc. ALLIED HEALTH SCIENCES
GENERAL PATHOLOGY

Time: 1½Hour **Maximum Marks: 40**

Illustrate your answers with suitable diagrams wherever necessary.

(A) Long Answer Questions **(1X10=10)**

1. Mention the types of necrosis with examples

(Or)

2. Describe about Myocardial infarction

(B) Short Answer Question **(3X6=18)**

Answer any THREE of the following

1. Tabulate the difference between Benign and Malignant tumors
2. Define anemia. Mention types of anemia, on the basis of Etiology.
3. Explain the mode of spread of tumors in brief.
4. Explain granulomatous inflammation with a neat labeled diagram
5. Describe the method of collection, transport and preservation of CSF

(C) Very Short Answer Questions **(4X3=12)**

Answer any FOUR of the following

1. Define Apoptosis.
2. Enumerate two colors coding for various biomedical waste disposal with examples.
3. Define cross matching
4. Mention two types of Necrosis.
5. Define Pneumonia.

I YEAR ELECTIVE COURSES

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES
ABILITY ENHANCEMENT COMPULSORY COURSE (AECC) - ENGLISH

NAME OF THE SUBJECT PAPER	**: ENGLISH**
DURATION OF THEORY CLASSES	**: 16hrs**
DURATION OF PRACTICAL SESSIONS	**: 34hrs**
EXAMINATION	**: 100 marks (80 U + 20 IA)**
NO UNIVERSITY PRACTICAL EXAMINATION	
DURATION OF THEORY EXAMINATION	**: 1 ½ hrs**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: I YEAR**

COURSE OUTCOMES FORENGLISH

ENG-CO1: Speak and write grammatically correct sentences in English

ENG-CO2: Develop effective writing skills needed for clinical task

ENG-CO3: Build fluency in English needed for clinical tasks

SYLLABUS
(THEORY& PRACTICALS = 16 +34 Hours)

COURSE DESCRIPTION

This course is designed to build spoken and written English competency of the students needed to function effectively in academic setup.

OBJECTIVES

On completion of this subject, the student will be able to:

1. Speak and write grammatically correct sentences in English.
2. Develop effective writing skills.
3. Build fluency in English

UNIT: I GRAMMAR

1. Remedial Grammar : Parts of speech; Types of sentences, question tags
2. Modal verbs;
3. Tenses
4. Concordance

UNIT: II VOCABULARY

1. Word formation – prefixes and suffixes
2. Medical terminology
3. Words often misused or confused
4. Idioms and phrases

UNIT: III WRITING SKILLS

1. Letter writing - permission, leave and other official letters
2. Note making methods
3. Jumbled sentences -cohesion
4. Paragraph Writing

UNIT: IV SPOKEN COMMUNICATION

1. Pronunciation of commonly mispronounced words
2. Day today conversation
3. Telephonic conversations
4. Group Discussions

UNIT: V LISTENING AND READING SKILLS

1. General Listening and reading comprehension

Textbook Recommended

1. Effective English Communication by Krishna Mohan and Meenakshi Raman, Tata McGraw – Hill Publishing Company Limited, New Delhi.
2. English for Colleges and Competitive Exams by Dr. R. Dyvadatham, Emerald Publishers.

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES
SKILL BASED ELECTIVE COURSE (SBEC) – CULINARY SKILLS FOR OPTIMAL NUTRITION

NAME OF THE SUBJECT PAPER : CULINARY SKILLS FOR OPTIMAL NUTRITION

DURATION OF THEORY CLASSES : 16 Hrs

DURATION OF PRACTICAL SESSIONS : 32Hrs

PRACTICAL EXAMINATION : 50 Marks (40 U + 10 IA)

NO UNIVERSITY THEORY EXAMINATION

DURATION OF EXAMINATION : 1 ½ Hrs

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT: I YEAR

COURSE OUTCOMES

NUTRI-CO1: Understand the basic food groups, their nutrient composition and function for balanced healthy diet for people of all ages & patients on dietary management for healthy life.

THEORY & PRACTICALS (DURATION 16 + 32 Hours)

UNIT-I INTRODUCTION TO FOODS AND NUTRITION

- Food-Definition of foods, nutrition and nutrients characteristics of good health
- Relation of nutrition to good health-optimal nutrition, malnutrition and over nutrition
- Classification of foods based on major nutrient content
- Food selection-factor responsible for food selection

UNIT-II FOODS GROUPS

- Basic four and five food groups-cereals, millets pulses, fruits and vegetables, fats and oils, sugar and jaggery.
- Foods and nutrients, Functions of food- energy yielding, body building and protective foods, balanced diet, vegetarian and non-vegetarian foods
- Functional Foods-Dietary supplements
- Food Adulterations-Common adulterants and method of identification, nutrition labeling and food standards

UNIT-III METHODS OF COOKING, PRESERVATION AND SENSORY EVALUATION

- Principles and techniques of sensory evaluation, Interpretation tools
- Cooking methods-moist heat, dry heat advantages and disadvantages, changes during cooking, nutrient preservation while cooking
- Preservation techniques advantages and disadvantages

UNIT-IV NUTRITIONAL REQUIREMENTS AND MEAL PLANNING

- Basic nutritional requirements through different stages of life cycle, basic principles of meal planning, revisiting concept of balanced diet.

PRACTICALS

- Introduction to cutlery and crockery
- Introduction to weights and measures
- Art of table setting
- Market survey on food labeling
- Preparation of few commonly consumed cereal preparation
- Preparation of few commonly consumed pulse dishes
- Vegetable cooking without nutrient loss
- Preparation and display of fruits salads
- A day‘s menu for an adult sedentary worker
- A day‘s menu for an 8-montholdinfant
- Nutritious snacks for preschooler
- Nutritious lunch for school going boys and girl
- Consistency modified menu foran80-year-old
- Simple test to identify food adulteration
- Sensory evaluation of prepared items

METHODS OF TEACHING

1. Lecture cum discussion
2. Demonstration
3. Lab visit
4. Practical work record

METHODS OF EVALUATION

1. Written Test
2. Laboratory observation Book
3. Assignments
4. Oral Presentations

Reference book

1. Srilaksmi.B. : Food science; seventh edition(2012)
2. Jacqueline B .Marcus :Culinary Nutrition: The science and practice of healthy cooking:(2014)

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES
SKILL BASED ELECTIVE COURSE (SBEC) – ENHANCING SOFT SKILL & PERSONALITY

NAME OF THE SUBJECT PAPER : Enhancing soft skill & personality

DURATION OF THEORY CLASSES : 16Hrs

DURATION OF PRACTICAL SESSIONS : 32Hrs

PRACTICAL EXAMINATION : 50 Marks (40 U + 10 IA)

NO UNIVERSITY THEORY EXAMINATION

DURATION OF EXAMINATION : 1 ½ Hrs.

YEAR : I YEAR

COURSE OUTCOMES

ESSP-CO1: Foster healthy attitude and develop effective inter and intra personal skills to be an effective team worker in both academic and professional setup.

LEARNING OBJECTIVES

This course is designed to equip the students with essential soft skills needed for workplace and improve personality.

SYLLABUS

UNIT: I ASPECTS OF COMMUNICATION

1. Importance of communication, Process, Barriers
2. Nonverbal Communication

UNIT: II SPEAKING

1. Opening and Closing conversations
2. Introductions and Address Systems
3. Expressing Courtesy
4. Giving Compliments and replying to Compliments
5. Presentation Skills
6. Telephonic conversation and telephone etiquette

UNIT – III PRESCRIBED READING

1. White washing the Fence – Episode from Tom Sawyer by Mark Twain
2. Bacon's Essays: - Of Goodness and goodness of nature

UNIT – IV WRITING

1. Letter writing - Letter of Complaints, Inviting and Declining an invitation
2. Memos and Email
3. Editing- Grammar, Spelling & Punctuation, Use of Dictionary &Thesaurus.

UNIT – V SOFT SKILLS

1. Active Listening Skills
2. Assertive Skills
3. Negotiation and Persuasive Skills
4. Interview Skills

Reference Books

1. Communication Skills for Engineers and Scientists by Sangeeta Sharma and Binod Mishra, PHI Learning Private Limited, New Delhi.
2. English and soft skills by S.P. Dhanavel, Orient Black Swan
3. Effective English Communication by Krishna Mohan and Meenakshi Raman, Tata McGraw –Hill Publishing Company Limited.
4. Technical Communication – Principles and Practice, by Meenakshi Raman and Sangeetha Sharma, II edition, Oxford University Press.

Learning Outcome

This course is designed to help the students to

- Foster healthy attitude.
- Develop effective inter and intra personal skills to be an effective team worker.
- Communicate effectively in both academic and professional setup

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES
SKILL BASED ELECTIVE COURSE (SBEC) – SPEAKING EFFECTIVELY

NAME OF THE SUBJECT PAPER : SPEAKING EFFECTIVELY

DURATION OF THEORY CLASSES : 16Hrs

DURATION OF PRACTICAL SESSIONS : 32Hrs

PRACTICAL EXAMINATION : 50 Marks (40 U + 10 IA)

NO UNIVERSITY THEORY EXAMINATION

DURATION OF EXAMINATION : 1 ½ Hrs.

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT: I YEAR

COURSE OUTCOMES

SPEAK-CO1: Speak and write grammatically correct sentences in English and Build fluency in English needed for clinical tasks.

LEARNING OBJECTIVES

- Advance the students intellectual curiosity, competency and skills in preparation for employment
- Develop critical thinking, creativity and effective communication

SYLLABUS

1. Communication Skills

- Importance of Communication skills in Public health; Communication process; Methods of communication; Types of communication: Verbal and Non-verbal; Impediments to effective communication; Feedback

2. Oral Presentation Skills

- Preparation and planning; Structure; Audio-visual aids; Creating interest and establishing a relationship with the audience; Body language; Voice and pronunciation; Review

3. Writing skills

- Writing a scientific paper; Writing a proposal; Structure of an article; References and literature review; Peer-review process-Publication bias; International guidelines for publication in journals; Professional Ethics

4. Leadership in Public health

- Leadership styles and trait; Motivation skills; Interpersonal communication skills; Problem solving skills; Decision making skills; Management skills; Communication Skills

5. Manuscript writing

- Writing introduction, objectives, methodologies, major finding, discussion, conclusion and recommendation

6. Seminar presentations

- Use of computers present data and information on recent topics

LEARNING OUTCOMES

At the completion of the course, the students will-

- Develop good written and oral communication abilities
- Develop an understanding of team building and leadership skills
- Develop knowledge regarding capacities needed to work independently within diverse work environments

TEXT BOOKS

1. Professional Writing Skills, A self-paced training Programme by Janis Fisher Chan and Diane Lutovich.

2. Speaking Your Mind: Oral Presentation and Seminar Skills By Rebecca Stott, Tory Young, Cordelia Bryan Contributor Rebecca Stott, Tory Young, Cordelia Bryan.

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES
SKILL BASED ELECTIVE COURSE (SBEC) – BASICS OF YOGA AND PRACTICE

NAME OF THE SUBJECT PAPER : BASICS OF YOGA AND PRACTICE

DURATION OF THEORY CLASSES : 16Hrs

DURATION OF PRACTICAL SESSIONS : 32Hrs

PRACTICAL EXAMINATION : 50 Marks (40 U + 10 IA)

NO UNIVERSITY THEORY EXAMINATION

DURATION OF EXAMINATION : 1 ½ Hrs

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT : I YEAR

SYLLABUS & COURSE OUTCOMES FOR BASICS OF YOGA & PRACTICE (YOGA)

YOGA CO1: Understand the respiratory system, types of breathing and benefits of meditation.

Unit	TIME(HRS)	CONTENT
1	1	Introduction to Yoga philosophy, psychology and lifestyle
2	1	A brief outline of the history of Yoga.
3	1	Cultivation of correct psychological attitudes
4	1	Asanas : Definition, Types, scope and limitations of Asanas
5	1	Pranayamas and their significance in Yogic curriculum, Types & phases of Pranayama.
6	1	Dharna and Dhyana as the keys to unlocking human potential.
7	1	Study of various aspects of Yoga: Kriyas, Bandhas, Mudras
8	1	Yoga defined as ―Integration‖ and ―Harmony‖
9	1	Meaning of the term ―Positive Health‖
10	1	Yoga, a tool to restore homeostasis
11	1	Integration of Yoga into Health Professions Education
12	1	Order of teaching the Yogic practices; Do‘s and Dont‘s of specific Yoga techniques.
13	2	Applied aspects of Yoga in various human activities like therapeutics, education and sports
14	2	Introduction to yogic concept of health and disease

Unit 15: Introduction to Yogic techniques: Methods and practices (32 hours)
Asanas (26 hrs):

- Aruna Surya Namaskar
- Ardha – Padmasana/Padmasana
- ArdhakatiChakrasana
- PadaHasta
- PavanaMuktasana
- Trikona
- Navasana
- Ardha –Shalabhasana
- Shalabhasana
- Makarasana
- Bhujangasana
- Dhanurasana
- Vakrasana
- Vrikshasana
- Ushtrasana
- Gomukasana
- Yoga Mudra.
- Natarajasana
- Chakra sana
- Sarvangasana
- Matsyasana
- Halasana
- Shavasana

Pranayama (6 hrs)

- Vibhaga Pranayama
- Pranava Pranayama
- Savitri Pranayama
- Chandra and SuryaNadi Pranayama
- Nadi–Shuddhi
- Sheetali and Sitkari

TEXT BOOKS

- Dayanidy G and Bhavanani AB. CYTER Practical Book. Pondicherry, India: Dhivyananda Creations;2016.
- A primer of Yoga Theory – Dr Ananda Balayogi Bhavanani, Dhivyananda Creations,Pondicherry-13
- Fundamentals of Yoga History- Compilation by Meena Ramanathan
- Basic Hatha Yoga lessons (Tamil) – Dr Ananda Balayogi and Meena Ramanathan, Puducherry

BOOKS RECOMMENDED FOR STUDIES AND REFERENCE

1. A yogic approach to stress-Dr Ananda Balayogi Bhavanani, Ananda Ashram, Pondicherry
2. Asana, Pranayama, Mudra and Bandha. Swami Satyananda, Bihar School of Yoga,Monger
3. ASANAS : WHY? AND HOW? – byShri. O.P. Tiwari.Kaivalyadhama,Lonavla.
4. Hatha Yoga practices of the Gitananda tradition by Dr Ananda Balayogi Bhavanani
5. Ramanathan Meena. Applied Yoga: Applications of Yoga in Different Fields of Human Activities. 3rdEd; Pondicherry, India: Sri BalajiVidyapeeth;2018
6. PRANAYAMA – by Swami Kuvalayananda. Kaivalyadhama, Lonavla.
7. Yoga and sports- Swami Gitananda and Meenakshi Devi, Ananda Ashram, Pondicherry.

SYLLABUS FOR I YEAR

B.Sc. ALLIED HEALTH SCIENCES

GENERIC ELECTIVE COURSE (GEC) – BASICS OF HOSPITAL ADMINISTRATION

NAME OF THE SUBJECT PAPER : BASICS OF HOSPITAL ADMINISTRATION

DURATION OF THEORY CLASSES : 64Hrs

THEORY EXAMINATION : 50 Marks (40 U + 10 IA)

NO UNIVERSITY PRACTICAL EXAMINATION

DURATION OF THEORY EXAMINATION : 1 ½ HRS

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT : I YEAR

COURSE OUTCOMES

HSM CO1: To familiarizes students with the basics concepts, policies of hospital management regarding the occupational safety, organizational behavior & quality management.

COURSE OBJECTIVES

- To provide orientation about the hospital functions
- To familiarize students with the basics concepts of hospital management

THEORY (DURATION 64 Hours)

UNIT: I ORGANISATION OF A HOSPITAL AND ITS DEPARTMENTS

1. Organogram
2. Vision, Mission &Values, Logo
3. Patient Service Points – Clinical & Non-Clinical (OPD‘s, A&E, MHC, Wards, ICU‘s, OT‘s, etc.)
4. Scope of Services (Medical &Supportive Services)

UNIT: II HOSPITAL POLICIES & PROCEDURES

1. Registration Process
2. OP/IP Billing
3. Admission Process
4. Discharge Process
5. Financial counseling
6. Visitors Policy
7. Feedback forms.

UNIT: III MEDICAL RECORS MANAGEMENT/LEGAL ASPECTS

1. Types of Medico legal cases 2.SOP‘s for handling MLC

3. Medical Records -Forms, consents, registers used in hospitals

UNIT: IV QUALITY MANAGEMENT

1. Quality – Brief Introduction
2. Code of Conduct for health care professionals
3. Patient rights &responsibilities
4. Incident Reporting
5. Quality indicators
6. List of Licenses to be obtained to run a Hospital College
7. Accreditation–ISO/NABH/JCI

UNIT: VOCCUPATIONAL SAFETY

1. Biomedical Waste Management
2. Hospital Spill Management
3. Usage of PPE
4. Emergency Codes
5. Fire Safety Management
6. Hospital Infection Control

UNIT: VI ORGANISATIONAL BEHAVIOUR

1. Communication with patients/health care professionals
2. Grooming standards
3. Time Management
4. Grievance Handling, Interdisciplinary Committee
5. Leadership

LEARNING OUTCOMES

Students will have an overview of hospital functions, processes and patient management.

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES
GENERIC ELECTIVE COURSE (GEC) – COUNSELING AND GUIDANCE

NAME OF THE SUBJECT PAPER : COUNSELING AND GUIDANCE

DURATION OF THEORY CLASSES : 64Hrs.

EXAMINATION : 50 Marks (40 U +10IA)

NO UNIVERSITY PRACTICAL EXAMINATION

DURATION OF THEORY EXAMINATION : 1 ½ Hrs.

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT : I YEAR

COURSE OUTCOMES

CG CO1: To assess a person's needs and understand their personal characteristics that will help in personal growth, wellbeing and improving their relationships with others.

LEARNING OBJECTIVES

- To understand theoretical foundations of counseling psychology
- To examine briefly the major perspectives of Counselling and to apply based on the client's needs
- Toassessone_sownneedsandmotivationsandpersonalcharacteristicsthatwill help in personal growth and wellbeing.
- To understand basic counseling skills as practiced by an effective counsellor.
- To discuss special settings and populations where Counselling could be effectively used.
- To explore ethical and legal issues for the practice of counseling profession.

SYLLABUS

UNIT I:

Introduction and definition of Counselling and Guidance, Counsellor Preparation, Qualifications, Qualities, Legal and Professional ethics

UNIT- II:

Different approaches to counselling, goals in counselling, role and functions of the counsellor.

UNIT- III:

Micro skills in Counselling- relationship building strategies and methods: Opening techniques, attending skills- verbal and non-verbal communication, Listening skills:

Open questions and closed questions, Encouragement, Paraphrasing, Reflection, Summarization, influencing skills-Reframing, genuineness and Self-disclosure.

UNIT-IV:

Macro skills in Counselling, empathy, advanced empathy, Confrontation & challenging, Resistance, transference and counter-transference

UNIT-V:

Counselling situations and Counselling across life-span.

Learning Outcome

At the end of this course, the students will be able to:

Demonstrate basic knowledge in counseling (concepts, theories, ethical issues, basic skills, etc.)

SYLLABUS FOR I YEAR
B.Sc. ALLIED HEALTH SCIENCES
GENERIC ELECTIVE COURSE (GEC) – LIFESTYLE DISORDERS

NAME OF THE SUBJECT PAPER : LIFESTYLE DISORDERS

DURATION OF THEORY CLASSES : 64Hrs

EXAMINATION : 50 Marks (40 U +10IA)

NO UNIVERSITY PRACTICAL EXAMINATION

DURATION OF THEORY EXAMINATION : 1 ½ Hrs.

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT : I YEAR

COURSE OUTCOMES

LD CO1: To understand the relevance, significance and implications of lifestyle disorders for the betterment of human life quality.

THEORY (64 Hours)

UNIT I Modern Life style disorders

Desk bound and sleeping habits, junk food, anxiety. Food poisoning, Acidity.

UNIT II Dietary disorders

Food groups and concept of a balanced diet, obesity, metabolic syndrome, hypertension- their causes and prevention through dietary and lifestyle modifications

UNIT III Social health problems

Smoking, alcoholism, drug dependence and Acquired Immune Deficiency Syndrome (AIDS).

UNIT IV Gastrointestinal disorders

Stomach disorders-Gastritis, Ulcer, Amoebiasis, Constipation, piles
Common ailment- cold, cough, fevers, diarrhea, constipation- their causes and dietary

LEARNING OUTCOMES

To understand the relevance, significance and implications of lifestyle disorders for the betterment of human life quality

Text Books

1. Text book of Clinical Biochemistry-Carl.A. Burtis and EdwardR.Ashwood
2. Text Book of Medical Biochemistry–Dr.M.N.Chatterjee and Rane Shinde

Reference Books

1. P. Singh MD. Textbook of Nutrition and Health; First Ed; 2008; Academic Excellence Biochemistry with Clinical Correlation- Thomas M.Devl

II YEAR

B.Sc - OPERATION THEATRE TECHNOLOGY
FACULTY OF ALLIED HEALTH SCIENCES
SRI BALAJI VIDYAPEETH
(Deemed to be University)
Accredited by NAAC with 'A' Grade

II-YEAR

CORE SUBJECTS

1. Clinical Pharmacology
2. Applied Anatomy and Physiology
3. Principles of Operation theatre Management
4. Introduction to Anaesthesia Technology

ELECTIVES
Ability Enhancement compulsory course (AECC)

1. Environmental studies

Skill enhancement course (SEC) – Choose any TWO

1. Good Clinical Laboratory practice
2. Computer Applications
3. Library and E-resource
4. Public Health and Hygiene

Generic Elective Course (GEC) – Choose any ONE

1. Basic Psychology
2. Sociology
3. Entrepreneurship essentials

AHS Course Content Second year B.Sc. Operation Theatre Technology (OTT)

Faculty code	Category	Course title	Hours					Credits				
AHS	Core theory OTT	Subjects	Theory	Practical	Tutorials	Clinical training	Total hours	Lecture	Practical	tutorials	Clinical training	Total credits
AHS	OTT -5	Clinical Pharmacology	80		32			5		1		6
AHS	OTT -6	Clinical Pathology and Clinical Microbiology	80		32			5		1		6
AHS	OTT -7	Introduction to Operation Theatre Technology	64	64				4	2			6
AHS	OTT -8	Medicine Relevant to Operation Theatre Technology Technician	80		32			5		1		6
AHS	OTT-CT 1	Clinical Training OTT 5 to 8				192					6	6
AHS	AECC	Environmental Science	16	32				1	1			2
AHS	SEC – 1-3	Student‘s choice	16	32				1	1			2
AHS	SEC – 1-3	Student‘s choice	16	32				1	1			2
AHS	GEC - 1-3	Student‘s choice	64					4				4
			416	**160**	**96**	**192**	**864**	**26**	**5**	**3**	**6**	**40**

SCHEME OF EXAMINATION

Papers	Subject	Theory		Practical		Theory	Practical	Grand total 800	Min marks to pass % (400)
		UE	IA	UE	IA	UIA*	UIA*		
OTT -5	Clinical Pharmacology	80	20					100	50
OTT -6	Clinical Pathology and Clinical Microbiology	80	20					100	50
OTT -7	Introduction to Operation Theatre Technology	80	20	80	20			200	100
OTT -8	Medicine Relevant to Operation Theatre Technology Technician	80	20					100	50
OTT-CT 1	Clinical Training OTT 5 to 8						100	100	50
AECC	Ability enhancement Compulsory Course – Environmental Science	80	20					100	50
SEC	Skill enhancement Course	80	20					100	50
SEC	Skill enhancement Course	80	20					100	50
GEC	Generic elective	80	20					100	50

For all elective course, 40 marks for university theory and Practical cum Viva examination & 10 marks as Internal Assessment = 50 marks which will be converted to 100 marks in the transcript.

CLINICAL PHARMACOLOGY

PAPER AT- 5 CLINICAL PHARMACOLOGY

NAME OF THE SUBJECT PAPER	**: CLINICAL PHARMACOLOGY**
DURATION OF THEORY CLASSES	**: 80 HOURS**
DURATION OF TUTORIAL SESSION	**: 32 HOURS**
THEORY EXAMINATION	**: 100 MARKS (80 U+ 20 IA)**
DURATION OF THEORY EXAMINATION	**: 3 HOURS**
PRACTICAL EXAMINATION	**: NIL**
YEAR IN WHICH SUBJECT PAPER IS TAUGHT	**: II YEAR**

COURSE DESCRIPTION

The course is designed to acquire knowledge of drugs used in anesthesiology. To ensure that the students understand the pharmacology of drugs used in clinical practice of anesthesia technology.

COURSE OBJECTIVES

1. Knowledge about the pharmacology of anaesthesia drugs.
2. Learn the pharmacology of emergency resuscitation drugs used in clinical practice.

PROGRAMME OUTCOME

OT T -PO1: Performs the duty as an Operation Theatre Technologist with leadership qualities having a good written & communication skill and also skilled at computer applications including E-library.
OT T -PO2: To gain knowledge about laboratory safety precautions, biomedical waste management adhering to the environmental needs of the society and preventing the spread of infectious diseases.
OT T -PO3: Understanding the structure and functions of different organs in normal human body.
OT T -PO4: Ability to perform urinalysis, Serology, hematology, cytology, blood banking, biochemical, microbiological parameters and drug reactions.
OT T -PO5: To make students assist Anesthesiologist during administration and monitoring of Anesthesia including cardiopulmonary resuscitation.
OT T -PO6: To make students in effective participation of basic clinical skills, application of health promotion and disease prevention strategies.
OT T -PO7: To make students aware of the basic surgical and ethical principles, infection control protocol followed in operating room complex.

OT T -PO8: To make students participate in OT administration, organization and quality improvement.
OT T -PO9: To make students understand the pharmacological principles pertaining to the drugs used in anesthesia and critical care unit.
OT T -PO10: To build efficient technologist in handling Anesthesia monitors, Anesthesia & surgical Equipment's practice.
OT T -PO11: To make students effective in preparation of operation theatre for all super specialty surgeries & effective participation in labor analgesia, trauma care and management.
OT T -PO 12: To make students assist surgeons in all elective and emergency surgical procedures and providing basic general care and expertise in pulmonology radiological studies, interventional cardiology procedures.
OT T -PO 13: To identify various life style disorders and with due counseling& guidance advising the patients with proper diet, hygiene and Yoga to keep the body, mind, soul and behavior healthy.

COURSE OUTCOME

OT PHAR CO 1: Learn & practice principles of basics &clinical pharmacology.
OT PHAR CO 2: Learn & practice pharmacology of induction agents, inhalational agents, Opioids, muscle relaxants, reversal agents, premedication drugs, sedatives and local anesthesia drugs.
OT PHAR CO 3: Learn& practice pharmacology of bronchodilators for the management of patients during anesthesia
OT PHAR CO 4: Learn & practice pharmacology of drugs used to treat cardiovascular diseases like anti anginal drugs, anti-hypertensive drugs, anti-coagulant, anti-arrhythmia drugs.
OT PHAR CO 5: Learn & practice pharmacology of vasoactive drugs – indications, contraindications, dosage & administration.
OT PHAR CO 6: Learn & practice pharmacology of obstetric emergencies drugs-indications, contraindications, dosage & administration.
OT PHAR CO 7: Learn & practice pharmacology of emergency resuscitation drugs indications, contraindications, dosage & administration

COURSE CONTENT

UNIT	TITLE	THEORY + TUTORIALS (80+ 32 HOURS)
I	• ANTISIALAGOGUES Atropine, Glycopyrrolate • ANTIEMETICS - Metoclopramide, Ondansetron, Dexamethasone • ANTACIDS - Na citrate, Gelusil, Mucainegel . ▫H2 BLOCKERS- Cimetidine, Ranitidine, Famotidine	15 HOURS + 6 TUTORIALS
II	• SEDATIVES & ANXIOLYTICS - Diazepam, Midazolam, Phenergan, Lorazepam , Flumazenil. • NARCOTICS - Morphine, Pethidine, Fentanyl, Pentazozine, Naloxone • ANALGESICS - Paracetamol, diclofenac, tramadol, ketrolac, Buprenorphine ,Nalbuphine	15 HOURS + 6 TUTORIALS
III	• INDUCTION AGENT - Thiopentone, Ketamine, Propofol, Etomidate. • MUSCLE RELAXANTS -Depolarising –Suxamethonium. • Non depolar:sing -Pancuronium,Vecuronium, Atracurium, rocuronium. • INHALATIONAL GASES - Gases - 02, N20, Air Agents Isofllurane, Sevoflurane, Desflurane. • REVERSAL AGENTS -Neostigmine.	20 HOURS + 6 TUTORIALS
IV	EMERGENCY DRUGS Local Anaesthetics - Xylocaine, Bupivacaine ,xylocaine-jelly, Emla Ointment, Etidocaine, Ropivacaine. • Adrenaline, Nor-adrenaline, Isoprenaline. •Vasopressin: Mode of administration, dilution, dosage, Effects. • Atropine, bicarbonate, calcium, potassium, ephedrine, xylocard. •Ionotropes : dopamine, dobutamine, amiodarone. • Aminophylline, hydrocortisone, protamine, anti-histamines.	15 HOURS + 6 TUTORIALS
V	DRUGS USED TO TREAT SYSTEMIC DISEASES &MISCELLANEOUS • Cardiovascular system • Antihypertensives– Eg : Beta Blocker, Ca channel blocker, ACE inhibitors •Anti arhythmics •Anti coagulation – Heparin • Anti diabetic – Oral Hypoglycemic agents, Insulin. • Bronchodilators – Aminophylline, Deriphylline •Steriod – Inj. Hydrocortisone, Inj. Prednisolone, Inj. Dexamethasone. • Vasodilators – nitroglycerin & sodium nitroprusside • Respiratory system - Bronchodilators, respiratory stimulants	15 HOURS + 8 TUTORIALS

	• Renal system -Diuretics, furosemide, mannitol • Obstetrics - oxytocin, methergin, Prostoglandin MISCELLANEOUS - Antibiotics classification, IV fluids, Various preparations.	

METHODS OF TEACHING

- Lecture cum discussion
- Demonstration
- Clinical OT postings
- Logbook

METHODS OF EVALUATION

- Written Test
- Laboratory observation Book
- Assignments
- Oral Presentations

REFERENCE BOOKS

- Clinical Anaesthesiology – 6 th edition Morgan
- Principles of anaesthesia equipment‘s –Yasodha nandhaariti
- Comparative pharmacology for anaesthetists- Vipindhama
- Milleranaesthesia

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UNIT NO	UNITS	WEIGHTAGE %	MARKS ALLOTED (80 marks)	LONG ANSWER (10 marks)	SHORT ANSWER (6 marks)	VERY SHORT ANSWER (3 marks)
Unit-1	Premedication drugs	15	12	-	1	2
Unit-2	Pain relief drugs	11	9	-	1	1 1*
Unit-3	General anesthetics	28	22	1 1*	1 1*	2 1*
Unit-4	Emergency Drugs	15	12	-	1	2
Unit-5	Drugs Used To Treat Systemic Diseases & Miscellaneous	31	25	1 1*	1	3

Note: * indicates the choice questions

PAPER AT -5 CLINICAL PHARMACOLOGY

MODEL QUESTION PAPER

Time: 3Hours **Maximum Marks:80**

Illustrate your answers with suitable diagrams wherever necessary.

A. Long Answer Questions **(2x10=20)**

1. a) Discuss briefly about the mechanism of action, systemic effects of Propofol?

(OR)

b) Last and its management?

2. a) Write about the various concentrations of bupivacaine and its clinical uses.

(OR)

b) Compare& Contrast pharmacology of ketamine and thiopentone?

B. Short Answer Questions -(Any5) **(5X6 =30)**

1. Compare and contrast pharmacology of atropine & glycopyrrolate?
2. What is the mechanism of action and clinical uses of benzodiazepines?
3. Discuss briefly about the systemic effects of thiopentone sodium?
4. Classify neuromuscular blockers?
5. Clinical uses of adrenaline.
6. Classify antiarrythmic drugs.

C. Very Short Answer Questions -(Any10) **(10x3=30)**

1. What is meant by atropine flush?
2. What is meant by atropine fever?
3. Write about benzodiazepine antagonist?
4. Clinical uses of lorazepam?
5. Mention any 4 physical properties of thiopentone sodium?
6. Mention the composition of Propofol?
7. Mention any 2 physical properties of Propofol?
8. What are the signs of adequate reversal?
9. How is succinyl choline metabolized?
10. What are the MAC value of isoflurane?
11. Mention the complication of halothane agents?
12. Write about laughing gas?

CLINICAL PATHOLOGY & CLINICAL MICROBIOLOGY

PAPER OTT- 6 - CLINICAL PATHOLOGY & CLINICAL MICROBIOLOGY

NAME OF THE SUBJECT	**: CLINICAL PATHOLOGY & CLINICAL MICROBIOLOGY**
DURATION OF THEORY CLASSES	**: 80 HOURS**
DURATION OF TUTORIAL SESSION	**: 32 HOURS**
THEORY EXAMINATION	**: 100 MARKS (80 U+ 20 IA)**
DURATION OF THEORY EXAMINATION	**: 3 HOURS**
PRACTICAL EXAMINATION	**: NIL**
YEAR IN WHICH SUBJECT PAPER IS TAUGHT	**: II YEAR**

COURSE DESCRIPTION

The course is designed to assist students to acquire knowledge about the basics of clinical microbiology and pathology. To ensure that the students understand the clinical pathological condition and infection control techniques in the practice of operation theatre technology.

COURSE OBJECTIVES

1. Learn & practice the principles of general bacteriology, immunology, virology, mycology and parasitology.

2. Clear understanding of infection in primary care with reference to epidemiology, diagnosis, treatment and prevention.

3: Learn about the biomedical waste management and infection control protocols followed in hospital.

PROGRAMME OUTCOME

At the end of 4 years of this training session, this curriculum will make students to achieve the following objectives:

OT T -PO1: Performs the duty as an Operation Theatre Technologist with leadership qualities having a good written & communication skill and also skilled at computer applications including E-library.

OT T -PO2: To gain knowledge about laboratory safety precautions, biomedical waste management adhering to the environmental needs of the society and preventing the spread of infectious diseases.

OT T -PO3: Understanding the structure and functions of different organs in normal human body.

OT T -PO4: Ability to perform urinalysis, Serology, hematology, cytology, blood banking, biochemical, microbiological parameters and drug reactions.

OT T -PO5: To make students assist Anesthesiologist during administration and monitoring of Anesthesia including cardiopulmonary resuscitation.

OT T -PO6: To make students in effective participation of basic clinical skills, application of health promotion and disease prevention strategies.

OT T -PO7: To make students aware of the basic surgical and ethical principles, infection control protocol followed in operating room complex.

OT T -PO8: To make students participate in OT administration, organization and quality improvement.

OT T -PO9: To make students understand the pharmacological principles pertaining to the drugs used in anesthesia and critical care unit.

OT T -PO10: To build efficient technologist in handling Anesthesia monitors, Anesthesia & surgical Equipment's practice.

OT T -PO11: To make students effective in preparation of operation theatre for all super specialty surgeries & effective participation in labor analgesia, trauma care and management.

OT T -PO 12: To make students assist surgeons in all elective and emergency surgical procedures and providing basic general care and expertise in pulmonology radiological studies, interventional cardiology procedures.

OT T -PO 13: To identify various life style disorders and with due counseling& guidance advising the patients with proper diet, hygiene and Yoga to keep the body, mind, soul and behavior healthy.

COURSE OUTCOMES

The students must acquire the relevant knowledge & learn the skills about the following competencies:

CPM-CO1: Learn & practice the principles of general bacteriology, immunology, virology, mycology and parasitology.

CPM-CO2: Clear understanding of infection in primary care with reference to epidemiology, diagnosis, treatment and prevention.

CPM-CO3: Learn about the biomedical waste management and infection control protocols followed in hospital.

CPM-CO4: Learn& practice clinical and medical laboratory methods.

CPM-CO5: Learn & practice histopathology and basic transfusion medicine.

SYLLABUS FOR OTT 6 SECTION A – CLINICAL PATHOLOGY

UNIT	TOPIC	THEORY& TUTORIALS (40+16 HOURS)
I.	**General aspects of Hematology** • Origin, development, morphology, maturation and function of blood cells • Fate and nomenclature of blood cell **Blood and bone marrow sample Collection** • Various methods of blood collection • Types of blood samples • Methods of collection in various age groups • Precaution to be followed in collecting blood samples • Methods of disposing both expiry, infected samples and sharps used • Different vacutainers with color codes • Advantages of Vacutainer • Bone marrow aspiration indication, methods, procedure **Anticoagulants** • Various anticoagulants used in hematology tests • Universal anticoagulants in hematology lab • Mechanism and uses of various anticoagulants	10 HRS + 3 TUTORIALS
II.	**RBC Parameters** • Principles of counting chambers used in hematology • Different methods of evaluation of Total RBC count including preparation, advantages and disadvantages of various diluting fluids for RBC count. • Hemoglobinometry : Principles and methods of quantitating Hb. Concentration of blood including knowledge of errors and quality control in various method. • Abnormal hemoglobin and its investigation. • Principles and methods of determining PCV calculation and interpretation of red cell indices • ESR: Introduction, factors affecting ESR, principles and methods of determining ESR, conditions increasing and decreasing of ESR. • MicroESR **WBC Parameters** • Introduction, development of WBC	10 HRS + 3TUTORIALS

	• Various method of estimation of total WBC count • Preparation of various diluting fluids and its mechanism of action • Advantages and disadvantages of various WBC diluting fluids • Absolute Neutrophil count (Arrneth count) • Absolute eosinophil count **Platelet Parameters** • Introduction, development of platelets • Various method of estimation of total platelet count • Preparation of various diluting fluids and its mechanism of action • Advantages and disadvantages of various platelet diluting fluids.	
III.	**Manual Cell Counting** • Advantages and disadvantages, uses and mechanism of cell counting, • Quality control in manual cell counts • Errors in sampling, mixing, diluting and counting **Preparation of Smears** • Preparation of peripheral smear, thin smear, thick smear, • Buffy coat smear and wet preparation • Bone marrow smear- imprint and crush preparation **Stains and Staining Methods** • Principle and methods of staining of blood smears and bone marrow smears. • Supra vital stains and Perles iron staining of bone marrow • Romanow sky stains - Preparation, advantages and disadvantages. • Trouble shooting in smears and stains **Peripheral Smear Interpretation** • Description of morphology of normal and abnormal RBC • Calculation of platelet and Total WBC count from PS • Blood differential WBC counting both normal and abnormal counts • Identification of RBC, WBC, Platelet disorders from PS • Identification of various RBC inclusion bodies • Identification of blood Parasites	8 HRS + 4 TUTORIALS

IV.	**Anemia** • Anaemia – definition, etiology classification and laboratory diagnosis. • Nutritional anemia workup • Other RBC disorders **Hemolytic Anemia** • Hemolytic anemia workup • Hemolytic anaemia: Definition, causatives, laboratory investigations. Autohemolysis, acid hemolysis • Methods of identification of abnormal hemoglobin including spectroscopy, Hb Electrophoresis, Principles of Alkalide naturation Test, Sickle cell preparation, Fetal Hb identification, Nile blue sulphate test, Osmotic fragility test. **WBC Disorders** • Various benign leucocyte reaction –Leukocytosis. Neutrophilia, Eosinophilia, Lymphocytosis, monocytosis, basophilia and leucopenias • Leukemoid reaction • Leukemias – definition, causes, classification, detection of leukemia. Total leucocyte count in leukemias. Multiple myeloma. • Cytochemical stains in Leukaemia **Platelet Disorders** • Blood Coagulation and disorders of hemostasis. Principles and methods of assessment of coagulation. BT, CT, Prothrombin time, partial thromboplast in time, • Thromboplastin regeneration time • Thrombocytopenia, thrombocythemias, platelet function test, platelet count. Clot retraction test. Platelet factor III Test.	6 HRS + 3 TUTORIALS

SYLLABUS FOR OTT 6 SECTION B – CLINICAL MICROBIOLOGY

UNIT	TOPIC	THEORY & TUTORIALS (40+16 HOURS)
I	**Importance of sterilization and disinfection** o Disinfection of instruments used in patient care o Disinfection of patient care unit o Infection control measures for ICUs	10 HRS + 4TUTORIALS
II	**Health care associated infections** • Surgical site infections • Urinary tract infections • Ventilator associated pneumonia • Catheter associated blood stream infections • Antibiotic associated diarrhea	10 HRS + 4 TUTORIALS
III	**Drug resistant bacteria** • MRSA • VRE • Drug resistant Gram negative bacteria	10 HRS + 4 TUTORIALS
IV	**Occupationally acquired infections and its prevention** • Respiratory route - Tuberculosis, Varicella zoster virus, Influenza, RSV • Blood borne route - HIV, HBV, HCV, CMV, Ebola • Oro fecal route - Salmonella, Hepatitis A • Direct contact - Herpes virus	10 HRS + 4 TUTORIALS

METHODS OF TEACHING

1. Lecture cum discussion
2. Demonstration
3. Lab visit
4. Practical work record

METHODS OF EVALUATION

1. Written Test
2. Laboratory observation Book
3. Assignments
4. Oral Presentations

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PAPER III –SECTION A- CLINICAL PATHOLOGY

S.No	Unit	Weightage (%)	Marks Allotted	Knowledge/Recall (50%)			Understanding (30%)			Application (20%)		
				LAQ 10	SAQ 6	VSAQ 3	LAQ 10	SAQ 6	VSAQ 3	LAQ 10	SAQ 6	VSAQ 3
I	General aspects of hematology	22.5%	9		1				1			
	Blood collection											
	Anticoagulants											
II	RBC parameters	15%	6		1							
	WBC parameters											
	Platelet parameters											
III	Manual cell counting	22.5%	9		1	1						
	Preparation of smears											
	Stains and staining methods											
	Peripheral smear interpretation											
IV	Aneamia	15%	6	1*	1*				1		1*	1
	Hemolytic aneamia											
	WBC disorders											
	Platelet disorders											
V	Urine examination	25%	10	1								1*
	Semen analysis											
	TOTAL	**100**	**40**									

*** indicates as choice questions.**

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PAPER OTT 6-SECTION B- CLINICAL MICROBIOLOGY

S.No	Unit	Weightage (%)	Marks Allotted	Knowledge/Recall			Understanding			Application		
				LAQ 10	SAQ 6	VSAQ 3	LAQ 10	SAQ 6	VSAQ 3	LAQ 10	SAQ 6	VSAQ 3
I	Importance of sterilization and disinfection	22.5%	9	1*	1	1						
II	Health care associated infections	32.5%	13	1		1		1*				1*
III	Drug resistant bacteria	22.5%	9		1				1		1*	
IV	Occupationally acquired infections and its prevention	22.5%	9		1				1			
Total		100%	40									

*** indicates as choice questions.**

PAPER –OTT 6 CLINICAL PATHOLOGY & CLINICAL MICROBIOLOGY
MODEL QUESTION PAPER

TIME:3 HOURS **MAXIMUM MARKS:80**

SECTION –A –CLINICAL PATHOLOGY

I. Long answer questions (1X10=10)

1. Explain in detail the principle and procedure of leishman's stain. Add a note on problems encountered during staining with their corrective actions.

(OR)

2. Describe the sample collection and precautions to be followed in seminal fluid collection.

II. Short answer questions -Answer any 3 questions (3X6 =18)

1. Write about etiological classification of anemia
2. Outline the lab diagnosis for hemolytic anemia
3. Describe in brief principles and procedure of cross matching
4. Describe in brief principles of Hemoglobinometry and discuss merits and demerits of various methods?
5. Describe in brief about Buffy coat preparation and its specific uses

III. Very Short answer questions –Answer any 4 (4 x3 =12)

1. Classify Transfusion reactions?
2. Mention the significance and normal value of Clot retraction time
3. List the components separated from one unit of blood
4. Name two anticoagulants used in blood bank
5. What is supravital Staining

SECTION –B -CLINICAL MICROBIOLOGY

A. Long answer questions (1X10=10)

1. Describe in detail about the infection control measures for Intensive care units?

(OR)

2. List microbes causing Lower Respiratory tract infections. Describe lab diagnosis of pulmonary tuberculosis?

II. Short answer questions -Answer any3questions (3X6 =18)

1. Difference between Sterilization and Disinfection?
2. Discuss the principle and clinical applications of ELISA technique.
3. Describe about toxin produced by Staphylococcus aureus.
4. Write about life cycle of Malaria.
5. Write a short note on Urinary tract infections.

III. Very Short answer questions –Answer any 4 **(4 x3 =12)**

1. Significant bacteriuria
2. Name the types of surgical site infections?
3. What is HICC? List two roles of HICC.
4. List the opportunistic infections in AIDS patients.
5. Name the antibiotic inhibiting the protein synthesis of bacteria.

INTRODUCTION TO OPERATION THEATRE TECHNOLOGY

PAPER OT 7 - INTRODUCTION TO OPERATION THEATRE TECHNOLOGY

NAME OF THE SUBJECT	**: INTRO TO OT TECHNOLOGY**
DURATION OF THEORY CLASSES	**: 80 HOURS**
DURATION OF PRACTICAL SESSION	**: 32 HOURS**
THEORY EXAMINATION	**: 100 MARKS (80 U+ 20IA)**
DURATION OF THEORY EXAMINATION	**: 3 HOURS**
PRACTICAL EXAMINATION	**: NIL**
YEAR IN WHICH SUBJECT PAPER IS TAUGHT	**: IIYEAR**

COURSE DESCRIPTION

The course is designed to acquire knowledge aseptic techniques followed in the operating complex and hospital. To ensure that the students understand the principles of aseptic techniques and applied in its clinical practice.

COURSE OBJECTIVES

1. Knowledge about the methods of sterilization.
2. Learn and practice infection control policy.
3. Learn about the management of operation room hazards.

PROGRAMME OUTCOME

OT T -PO1: Performs the duty as an Operation Theatre Technologist with leadership qualities having a good written & communication skill and also skilled at computer applications including E- library.
OT T -PO2: To gain knowledge about laboratory safety precautions, biomedical waste management adhering to the environmental needs of the society and preventing the spread of infectious diseases.
OT T -PO3: Understanding the structure and functions of different organs in normal human body.
OT T -PO4: Ability to perform urinalysis, Serology, hematology, cytology, blood banking, biochemical, microbiological parameters and drug reactions.
OT T -PO5: To make students assist Anesthesiologist during administration and monitoring of Anesthesia including cardiopulmonary resuscitation.
OT T -PO6: To make students in effective participation of basic clinical skills, application of health promotion and disease prevention strategies.

OT T -PO7: To make students aware of the basic surgical and ethical principles, infection control protocol followed in operating room complex.
OT T -PO8: To make students participate in OT administration, organization and quality improvement.
OT T -PO9: To make students understand the pharmacological principles pertaining to the drugs used in anesthesia and critical care unit.
OT T -PO10: To build efficient technologist in handling Anesthesia monitors, Anesthesia & surgical Equipment's practice.
OT T -PO11: To make students effective in preparation of operation theatre for all super specialty surgeries & effective participation in labor analgesia, trauma care and management.
OT T -PO 12: To make students assist surgeons in all elective and emergency surgical procedures and providing basic general care and expertise in pulmonology radiological studies, interventional cardiology procedures.
OT T -PO 13: To identify various life style disorders and with due counseling& guidance advising the patients with proper diet, hygiene and Yoga to keep the body, mind, soul and behavior healthy.

COURSE OUTCOME

IOT T CO 1: Learn & practice the principles of operation room techniques.
IOT T CO 2: Learn &practice OT administration, organization, quality improvement &CSSD procedures.
IOT T CO 3: Learn& practice the universal safety precautions, infection control protocol and prevention of fire followed in hospital.
IOT TCO 4: Learn & practice the basic principles of surgery, medical ethics and communication.
IOT T CO 5: Learn& practice the principles of perioperative management of surgical patients.
IOT T CO 6: Learn &practice safety patient transport techniques and equipment Practice

COURSE CONTENT

Unit	TITLE	THEORY + TUTORIALS (80 +32 HOURS)
I	**Theatre Organization** • Members of Surgical Team & Their Job Responsibilities • Recommendation of Indian Society of Anesthesiologists • Operating Department – Access Zones • Construction of Operating Room • Pendant Services • Operation Theatre Discipline & Asepsis Methods • Theatre Sterilization Schedule & Various Methods	25 HOURS + 10 TUTORIALS

	• Types Equipment‘s In The Operating Room • Maintenance of Drugs-Protocol •Cssd (Method Of Cssd Functioning- Cleaning & Packing Of Surgical Instruments, sterilization methods, Handling autoclaves, E.T.O sterilization. • OT STORES - indenting , storekeeping , accounting and auditing	
II	**Infection Control** • Care of skin • Hand hygiene • Protective apparel • Procedure for safe handling of sharps • Procedure for safe disposal of sharps • Management of blood and body fluid spills • Linen management (use &disposal) • PPE - Hand washing – Gloves - Masks, goggles & facemasks • Environmental cleaning • Hospital acquired infections • Management of Sharps • Universal precautions & occupational safety.	25 HOURS + 10 TUTORIALS
III	**Biomedical Waste, fire & safety management** • Separate waste streams - Sharp wastes - Infectious non sharp wastes - General waste- Recyclable items ,Colour coding • BMW Management Committee- Structure &Composition – functions • Steps - Segregation - Collection – Transportation-Disposal • Documentation - Application for authorization • prevention of fire and electric hazards inside the operating complex.	15 HOURS + 5 TUTORIALS

IV	**Patient and staff safety** **1. Communicating Effectively** 1.1. Involving patients as partners in healthcare 1.2. Do's& Don'ts of Communication 1.3. Obtaining Consent 1.4. Being culturally respectful &knowledgeable **2. Adverse events & near misses** 2.1. Introduction& explanation to the terms 2.2. Adverse event form **3. Working Safely** 3.1. Being a team player 3.2. Understanding human factors 3.3. Providing continuity of care **4. Medication safety** 4.1. Wrong site 4.2. Wrong patient 4.3. Wrong technique 4.4. Wrong dose 4.5. Wrong Medicine	10 HOURS + 5 TUTORIALS
V	**Medical, Legal & Ethical Issues** • Physician patient relationship • Confidentiality • Consent • Medical records • Risk management • End of life legal issues • Case studies -Malpractice	5 HOURS + 2 TUTORIALS

METHODS OF TEACHING

- Lecture cum discussion
- Demonstration
- Clinical ot postings
- Logbook

METHODS OF EVALUATION

- Written Test
- Laboratory observation Book
- Assignments
- Oral Presentations

REFERENCE BOOKS

1. Manual of anesthesia for OT technicians – ahnandha pillai
2. Clinical Anaesthesiology – 6th edition Morgan
3. Principles of anaesthesia equipment's –Yasodhanandhaariti
4. Comparative pharmacology for anaesthetists- Vipindhama
5. Milleran aesthesia

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UNIT NO	UNITS	WEIGHTAGE %	MARKS ALLOTED (80 marks)	LONG ANSWER (10 marks)	SHORT ANSWER (6 marks)	VERY SHORT ANSWER (3 marks)
Unit-1	Theatre Organization	31	25	1 1*	1	3 1*
Unit-2	Infection Control	31	25	1+1*	1 1*	3 1*
Unit-3	Biomedical Waste, fire & safety management	8	6	-	1	-
Unit-4	Patient and staff safety	8	6	-	-	2
Unit-5	Medical, Legal & Ethical Issues	22	18	-	2	2

Note: * indicates the choice questions

The duration of Examination (University) is Three (3) hours.

The total marks for the University Examination will be 100 marks.

Long Answer Questions : 2X 10 = 20 marks (Choice 2 out of4)

Short Answer Questions : 5X 6 = 30 marks (Choice 5 out of 6)

Very Short Answer Questions:10X3 = 30 marks (Choice 10 out of 12)

TOTAL = Theory 80 + IA 20 = 100marks

PAPER OT 7 - INTRODUCTION TO OPERATION THEATRE TECHNOLOGY

MODEL QUESTION PAPER

Time:3 Hours **Maximum Marks:80**

Illustrate your answers with suitable diagrams wherever necessary.

A. Long Answer Questions: **(2x10=20)**

1. a) Define Sterilization, classify it. Describe about the principles, advantages of moist heat sterilization in detail?

(OR)

(b) Explain in detail about the functional flow of a CSSD?

2. a) Write in detail about universal safety precaution?

(OR)

b) What are the steps involved in disinfection of HIV, HBV contaminated devices?

B. Short Answer Questions -(Any5) **(5x 6=30)**

1. Mention the clinical use of chemical disinfectant used in hospital setup?
2. What are the precautions to be taken for prevention of hospital acquired infection?
3. What aretheprecautiontechniquesinvolvedinhandlingserologypositivepatients?
4. Define biomedical waste? Classify hospital waste?
5. What are the major three reasons for need of confidentiality?
6. What are the importance of medical ethics?

C. Very Short answer questions -(Any10) **(10X 3 =30)**

1. Write about Categories of people working in operating theatre?
2. Name some parameters to be monitored in autoclaving.
3. Define sterilization?
4. What is antisepsis?
5. Any 2 precautions to prevent fire in operating room?
6. Define concurrent infection?
7. Define terminal infection?
8. Define droplet infection?
9. Define adverse drug reactions?
10. Define High risk medication?
11. Mention the 3 common types of malpractice?
12. Mention the importance of informed consent?

MEDICINE RELEVANT TO OT TECHNOLOGY

PAPER OTT-8 MEDICINE RELEVANT TO OT TECHNOLOGY

NAME OF THE SUBJECT	**: MEDICINE RELEVANT TO OT TECHNOLOGY**
DURATION OF THEORY CLASSES	**: 80 HOURS**
DURATION OF TUTORIAL SESSION	**: 32 HOURS**
THEORY EXAMINATION	**: 100 MARKS (80 U+ 20IA)**
DURATION OF THEORY EXAMINATION	**: 3HOURS**
PRACTICAL EXAMINATION	**: NIL**
YEAR IN WHICH SUBJECT PAPER IS TAUGHT	**: II YEAR**

COURSE DESCRIPTION

The course is designed to acquire knowledge about the disease of the various systems and to ensure that the students understand the clinical aspects in the practice of operation theatre technology.

OBJECTIVES

At the end of the course, the student will be able to

1. Learn & practice the basic medical terminology.

2. Learn &practice clinical presentation, basic pathophysiology, evaluation and management of disease condition of nervous system, cardiovascular system, and digestive system.

3. Learn& practice clinical presentation, basic pathophysiology, evaluation and management of disease condition of integumentary, geriatrics and reproductive system.

4. Learn& practice pharmacology of drugs used in respiratory, cardiovascular, central nervous, digestive, renal and musculoskeletal system.

PROGRAMME OUTCOME

At the end of 4 years of this training session, this curriculum will make students to achieve the following objectives:

OT T -PO1: Performs the duty as an Operation Theatre Technologist with leadership qualities having a good written & communication skill and also skilled at computer applications including E- library.

OT T -PO2: To gain knowledge about laboratory safety precautions, biomedical waste management adhering to the environmental needs of the society and preventing the spread of infectious diseases.

OT T -PO3: Understanding the structure and functions of different organs in normal human body.
OT T -PO4: Ability to perform urinalysis, Serology, hematology, cytology, blood banking, biochemical, microbiological parameters and drug reactions.
OT T -PO5: To make students assist Anesthesiologist during administration and monitoring of Anesthesia including cardiopulmonary resuscitation.
OT T -PO6: To make students in effective participation of basic clinical skills, application of health promotion and disease prevention strategies.
OT T -PO7: To make students aware of the basic surgical and ethical principles, infection control protocol followed in operating room complex.
OT T -PO8: To make students participate in OT administration, organization and quality improvement.
OT T -PO9: To make students understand the pharmacological principles pertaining to the drugs used in anesthesia and critical care unit.
OT T -PO10: To build efficient technologist in handling Anesthesia monitors, Anesthesia & surgical Equipment's practice.
OT T -PO11: To make students effective in preparation of operation theatre for all super specialty surgeries & effective participation in labor analgesia, trauma care and management.
OT T -PO 12: To make students assist surgeons in all elective and emergency surgical procedures and providing basic general care and expertise in pulmonology radiological studies, interventional cardiology procedures.
OT T -PO 13: To identify various life style disorders and with due counseling & guidance advising the patients with proper diet, hygiene and Yoga to keep the body, mind, soul and behavior healthy

COURSE OUTCOME

The students must acquire the relevant knowledge & learn the skills about the following competencies:
MED OT CO 1: Learn & practice the basic medical terminology.

MED OT CO 2: Learn &practice clinical presentation, basic pathophysiology, evaluation and management of disease condition of nervous system, cardiovascular system, and digestive system.
MED OT CO 3: Learn& practice clinical presentation, basic pathophysiology, evaluation and management of disease condition of integumentary, geriatrics and reproductive system.
MED OT CO4: Learn & practice pharmacology of drugs used in respiratory, cardiovascular, central nervous, digestive, renal and musculoskeletal system

COURSE CONTENT

UNIT	TOPIC	HOURS & TUTORIALS
I.	**Introduction to medical terminology**- roots, prefixes, and suffixes, vocabulary Problems – genetics, aging, infection, injury Skeletal system – Bones and ligaments – disorders, diagnosis and treatment, Muscular **system**– skeletal, smooth and cardiac muscles – disorders, diagnosis and treatment	9 HOURS
II.	**Nervous system**– brain, spinal cord, peripheral nerves, sense organs – disorders , diagnosis and treatment, **Endocrine system**– disorders, diagnosis and treatment Diagnostic includes – blood work, X-ray and imaging Treatment includes – medical and surgical	10 HOURS
III.	**Cardiovascular system** heart, blood and blood vessels – disorders, diagnosis and treatment Respiratory system – air passages, lungs, diaphragm - disorders, diagnosis and treatment **- Integumentary system**– skin, hair and nails – disorders, diagnosis and treatment Immune and lymphatic system – disorders, diagnosis and treatment Diagnosis – blood and imaging Treatment – Medical and surgical.	15 HOURS
IV.	**Digestive system**– mouth, throat, stomach, intestine, liver, gallbladder, pancreas – disorders, diagnosis and treatment ,**Urinary system**– kidneys, ureters, bladder, urethra- disorders, diagnosis and treatment **Reproductive system**– male and female – disorders, diagnosis and treatment Emergency medicine / Medical ethics.	21 HOURS
V.	**Geriatrics**- physiological and psychological fundamentals of aging process Diet for the aged and management of nutritional disorders .Disorders of major geriatric ailments and management - Medical – infections, dehydration, acute confusional state, osteoporosis, Degenerative joint diseases, effects of immobility – prevention of contracture and bedsores. Economic and psychosocial needs of the aged. Role of various health care providers including family.	25 HOURS

METHODS OF TEACHING

- Lecture cum discussion
- Demonstration
- Clinical postings
- Practical work record

METHODS OF EVALUATION

- Written Test
- Laboratory observation Book
- Assignments
- Oral Presentations.

REFERENCE BOOKS

- DAVIDSON'S PRINCIPLES & PRACTICE OF INTERNAL MEDICINE - 23 RD EDITION
- MEDICINE OUTLINE - U.NPANDA

BLUE PRINT

UNIT	WEIGHTAGE %	MARKS ALLOTED (80 marks)	LONG ANSWER (10 marks)	SHORT ANSWER (6 marks)	VERY SHORT ANSWER (3 marks)
1	15	12	-	1	2
2	15	12	-	1 1*	2
3	27	22	1 1*	1	2 1*
4	28	22	1 1*	1	2 1*
5	15	12	-	1	2

The duration of Examination (University) is Three (3) hours.
The total marks for the University Examination (THEORY + PRACTICAL) will be 200 marks.

THEORY EXAMINATION:

Long Answer Questions	: 2 X 10 = 20 marks (Choice 2 out of4)
Short Answer Questions	: 5 X 6 = 30 marks (Choice 5 out of6)
Very Short Answer Questions	: 10X3=30marks (Choice10 outof12)
Total	= Theory 80 + IA 20 = 100 Marks
Practical Examination	: Theory + Viva = 80 Marks
Total	= Theory 80 + IA 20 =100 Marks

PAPER OT- 8- MEDICINE RELEVANT TO OPERATION THEATER TECHNOLOGY

MODEL QUESTION PAPER

TIME:3 HOURS **MAXIMUM MARKS:80**

Illustrate your answers with suitable diagrams wherever necessary.

A. Long Answer Question. Answer any one. (2X10=20)

1. Explain in detail about cardiac cycle. Or b) write about lung volume and capacities
2. Explain in detail about urinary system. Or b)explain briefly about the conduction system of heart.

B. Write short answers any FIVE of the following questions. (5x6=30)

1. Describe about muscular system.
2. Integumentary system.
3. Classification of drugs acting on nerves.
4. Describe the morphology of liver and functions.
5. Write about physiological and psychological fundamentals of aging process.
6. Mention the causes of Blood pressure

C. Answer any TEN of the following out of twelve questions (10x3=30)

1. Disorders of ligaments.
2. Treatment of respiratory system.
3. Define diaphragm
4. Define osteoporosis.
5. What is degenerative joint disease?
6. How to prevent of bedsores.
7. What are the disorders of GIT?
8. What is basic effect of drugs?
9. Dehydration
10. Define skeletal muscles.
11. Hormones produce by kidney.
12. What are the microbes causes infection in Urinary tract.

II YEAR ELECTIVE COURSES

II YEAR ELECTIVE COURSE CONTENT ABILITY ENHANCEMENT COMPULSORY COURSE (AECC)

ENVIRONMENTAL STUDIES

NAME OF THE SUBJECT PAPER	**: ENVIRONMENTAL STUDIES**
DURATION OF THEORY CLASSES	**: 16 hrs**
DURATION OF PRACTICAL SESSIONS	**: 32 hrs**
EXAMINATION	**: 100 marks (80 U + 20IA)**
NO UNIVERSITY PRACTICAL EXAMINATION	
DURATION OF THEORY EXAMINATION	**: 1 ½ hrs**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: II YEAR**

SYLLABUS

UNIT-I (Renewable and Non — renewable resources**)**
The multidisciplinary nature of environmental studies — Definition, scope and importance — Need for public awareness.

1 Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
2 Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
3 Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
4 Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
5 Energy resources: Growing energy needs, renewable and non-renewable energy resources, use of alternate energy sources, case studies.
6 Land resources: Land as a resource, land degradation, man induced Landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

UNIT-II (Ecosystems)
Concept of an ecosystem - Structure and function of an ecosystem Producers, consumers and decomposers — Energy flow in the ecosystem-Ecological succession-Food chains, food webs and ecological pyramids —Introduction, types, characteristic features, structure and function of the following ecosystem:

- Forest ecosystem
- Grassland ecosystem
- Desert ecosystem
- Aquatic ecosystems (Ponds, streams, lakes, rivers, ocean estuaries)

UNIT-III (Biodiversity and its conservation)
Introduction — Definition: genetics, species and ecosystem diversity

- Biogeographically classification of India
- Value of Biodiversity: Consumptive use, productive use, social, Ethical aesthetic and option values
- Biodiversity at global, national and local levels
- India as a mega- diversity nation

- Hot-spots of biodiversity-Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity

UNIT-IV (Environmental Pollution)

Definition- causes, effects and control measures of:

- Air pollution
- Water pollution
- Soil pollution
- Marine pollution
- Noise pollution
- Thermal pollution
- Nuclear pollution
- Solid waste Management: causes, effects and control measures of urban and industrial wastes — role of an individual in prevention of pollution — Pollution case studies — Disaster management: floods, earthquake, cyclone and landslides.

UNIT-V

Social Issues and the Environment: From unsustainable to sustainable development — Urban problems and related to energy — Water conservation, rain water harvesting, watershed management —Resettlement and rehabilitation of people; its problems and concerns. Case studies - Environmental ethics: issues and possible solutions climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust.

- Wasteland reclamation — Consumerism and waste products — Environmental Protection Act — Air (Prevention and Control of Pollution) Act — Water (Prevention and control of Pollution) Act — Wildlife Protection Act — Forest Conservation Act - Issues involved in enforcement environmental legislation — Public awareness
- Human Population and the Environment: Population growth, variation among nations — Population explosion — Family welfare Programmes —Environment and human health- Human Rights - Value Education- HIV/ AIDS - Women and Child Welfare- Role of Information Technology in Environment and Human Health — Case Studies.

FIELD WORK

1. Visit to local area to document environmental assets- river/ forest/ grassland /hill / mountain
2. Visit to a local polluted site - Urban / Rural / Industrial /Agricultural
3. Study of common plants, insects, birds
4. Study of simple ecosystems- pond, river, hill slopes, etc.

TEXT BOOKS RECOMMENDED

1. Agarwal, K.C. Environmental Science, Nidi Publishers.
2. BharuchaErach, The Biodiversity of India, Mapin Publication.
3. Brunner RC, Hazardous waste incineration, McGraw Hill Publishers.
4. Iaclhav H, Environmental Protection and Laws, Himalaya Publication.
5. Odum EP, fundamentals of Ecology, WB Sannders Publication.

TEACHING LEARNING ACTIVITIES

The course content in Environmental Studies will be covered by:

1. Interactive Lectures
2. Group Discussions
3. Field Visits

SKILL- BASED ELECTIVE COURSES – II YEAR

GOOD CLINICAL LABORATORY PRACTICE

NAME OF THE SUBJECT PAPER	**: Good Clinical Laboratory practice**
DURATION OF THEORY CLASSES	**: 16 Hrs**
DURATION OF PRACTICAL SESSIONS	**: 32 Hrs**
PRACTICAL EXAMINATION	**: 50 Marks (40 U + 10IA)**
NO UNIVERSITY THEORY EXAMINATION	
DURATION OF EXAMINATION	**: 1 ½ Hrs**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: II YEAR**

THEORY & PRACTICALS (DURATION 16 + 32 Hours)

Learning Objective

- To understand the relevance, importance and basic concepts of good laboratory practices
- To apply the knowledge to become familiar with the basic laboratory skills

UNIT I: INTRODUCTION

Introduction to Bioethics and Biosafety. Biosafety Guidelines and Regulations. Legal and Socio-economic Impacts of Biotechnology. Use of Genetically Modified Organisms and their Release in the Environment. Hazardous Materials used in Biotechnology their Handling and Disposal.

UNIT II: GOOD LABORATORY PRACTICE PRINCIPLE

Test Facility Organization and Personnel: Management responsibility, Study directors responsibility, safety measures and personal responsibility. Quality assurance program. Facilities: Test System Facilities, Facilities for Handling test and Reference Substances. Archive Facilities. Waste Disposal, Animal Care Facilities, Animal Supply Facilities.

UNIT III: STANDARDED OPERATING PROCEDURES

Definition, Initiation of SOP, Preparation of SOP, Administration, Distribution and Implementation. Maintenance of laboratory records. Formatting SOP, Reagent/materials certification, Certification of analysts, Certification of laboratory facilities, Documentation and maintenance of record.

UNIT IV: DATE REPORTING AND STORAGE

Performance of study, Study plan, Conduct of study, Reporting of results. Archival storage of records and reports.

Learning Outcome

- To understand the implications of good laboratory practices

SKILL- BASED ELECTIVE COURSES – II YEAR
COMPUTER APPLICATIONS

NAME OF THE SUBJECT PAPER : COMPUTER APPLICATIONS

DURATION OF THEORY CLASSES : 16Hrs

DURATION OF PRACTICAL SESSIONS : 32Hrs

PRACTICAL EXAMINATION : 50 Marks (40 U + 10 IA)

NO UNIVERSITY THEORY EXAMINATION

DURATION OF EXAMINATION : 1 ½ Hrs

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT : II YEAR

THEORY & PRACTICALS (DURATION 16 + 32 Hours)

UNIT - I - Introduction to Computers

- Concepts of Computers
- Hardware and software trends and technology
- Classification of computers
- Application of computers in Laboratories

UNIT - II - Operating System

- Introduction
- Types of operating systems
- Windows

UNIT - III –Multimedia

- Types and uses
- Computer aided teaching and testing

UNIT — IV -Internet

- Introduction to Internet
- Use of Internet and e-mail
- Statistical packages

LIST OF PRACTICAL EXERCISES

1. Computer operating systems like MS~DOS and WINDOWS
2. Study of software packages like Chem Draw, Tinker and Microsoft package. Unit - Typing text in MS word- manipulating text- formatting the text – using different font sizes, bold, italics, Bullets and numbering – pictures, file insertion – aligning the text and justify – choosing paper size – adjusting margins- header and footer, inserting page numbers in a document – printing a file with options – using spell check and grammar – find and replace mail merge – inserting tables in a document.

Creating table in MS - Excel – cell editing – using formulas and functions – manipulating data with excel – using sort function to sort numbers and alphabets – drawing graphs and charts using data in excel – auto formatting – inserting data from other worksheets Preparing new slides using MS- POWER POINT – inserting slides – slide transition and animation – using templates – different text and font sizes – slides with sounds – inserting clip arts, pictures, tables and graphs – presentation using wizards.

Internet- using search engine – Google search – Exploring the text Explorer and Navigator – uploading and downloading of files and images E mail ID creation – sending messages – attaching files in E-mail

TEACHING LEARNING ACTIVITIES

The course content in Computer Applications will be covered by:

1. Interactive Lectures
2. Lab

SKILL- BASED ELECTIVE COURSES – II YEAR
Library and E-resource

NAME OF THE SUBJECT PAPER	**: Library and E-resource**
DURATION OF THEORY CLASSES	**: 16 Hrs**
DURATION OF PRACTICAL SESSIONS	**: 32 Hrs**
PRACTICAL EXAMINATION	**: 50 Marks (40 U + 10IA)**
NO UNIVERSITY THEORY EXAMINATION	
DURATION OF EXAMINATION	**: 1 ½ Hrs**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: II YEAR**

THEORY & PRACTICALS (DURATION 16 + 32 HOURS)

Course Objectives

- Toenablethestudentstounderstandatdifferentlevelsofinformationsystems in the society and their functions.
- To enable the students apply their knowledge in various library practice.
- To enable the students to understand the basic concepts of the Health Sciences.

UNIT: 1

Evolution, growth and development of LIS in India-current trends.
Type of libraries: Academic, Public and special Libraries (Health Science Libraries).

UNIT: 2

Library concepts & Legislation: Five laws of Library science, Professional ethics of librarian, Delivery of books and newspaper act/Intellectual Property/Plagiarism.

UNIT: 3

Library Association and International Bodies: Library Association –ILA, IASCIC, ALA, IFLA and UNESCO, SALIS, MLAI (Medical Library Association of India).

UNIT: 4

Library Rules & Regulation, Stock Verification, Annual Reports, Budgets, Library buildings, furniture, equipment‘s.

SKILL- BASED ELECTIVE COURSES – II YEAR
PUBLIC HEALTH AND HYGIENE

NAME OF THE SUBJECT PAPER	**: Public Health and Hygiene**
DURATION OF THEORY CLASSES	**: 16Hrs**
DURATION OF PRACTICAL SESSIONS	**: 32Hrs**
PRACTICAL EXAMINATION	**: 50 Marks (40 U + 10IA)**
NO UNIVERSITY THEORY EXAMINATION	
DURATION OF EXAMINATION	**: 1 ½ Hrs**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: II YEAR**

THEORY & PRACTICALS (DURATION 16 + 32 Hours)

Learning objectives

- To understand the concepts, significance and relevance of public health and hygiene
- To understand the health hazards as associated with public health and hygiene

I Introduction

Definition and Concept of Public Health, historical aspects, public health system in India and in the rest of world

II Aspects of health

Indicators of health, Determinants of Health, (Social, Economic, Cultural, Environmental, Education, Genetics, Food and Nutrition).Burden and prevention of disease. Environmental health- sanitation, air, water pollution, waste management. Mental health.

III Epidemology

Introduction, principles and concepts, study design, analysis methods, presentation and interpretation of epidemiological data

IV Hygieneconcepts

Definition, importance, personal hygiene, medical hygiene, food hygiene, industrial hygiene.

Learning outcomes

- To understand public health and hygiene issues, their relevance and significance as can be practiced in real-life situations.

Text Books

1. Introduction to Public Health, Raymond L. Goldsteen, Karen Goldsteen, David G. Graham, 2011, Springer publishing company
2. Introduction To Community Health Nursing, Kasturi SundarRao, 4th edition, Bi Publications PvtLtd
3. Concepts of Epidemiology, Raj S Bhopal, 2002, Oxford University press

Reference Books

1. A Treatise On Hygiene And Public Health, Birendra Nath Ghosh, 9th edition, Calcutta Scientific Publishing Co
2. An Introduction to Public Health, Caryl Thomas, 1949, John Wright and SonsLtd.,

GENERIC ELECTIVE COURSES – II YEAR
BASIC PSYCHOLOGY

NAME OF THE SUBJECT PAPER : Basic Psychology

DURATION OF THEORY CLASSES : 64 Hrs

EXAMINATION : 50 Marks (40 U + 10 IA)

NO UNIVERSITY PRACTICAL EXAMINATION

DURATION OF THEORY EXAMINATION : 1 ½ Hrs

YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT : II YEAR

THEORY (64 Hours)

LEARNING OBJECTIVES

After complete ting the course the student can able to

- To identify the emerging specialties
- To understand the behavior and mental processes
- Howthetheoriesandprinciplesofpsychologymaybeappliedtoindividual, societal and global issue
- Explain the application of psychology in Allied Health Sciences

Unit I: Introduction

Introduction to applied Psychology, Scientific methods in Psychology, Application of Psychology: Psychology in Industry, community, family, education, health, self development, Human relations. Scope of psychology with special relevance to Allied Health Sciences.

Unit II: various cognitive processes and their application

Factors affecting learning, Importance of studying Psychology of learning in relation to Allied Health Sciences

Memory and forgetting, Kinds of remembering, the nature of forgetting, Improving memory, relevance to Allied Health Sciences

Intelligence, Normal distribution of intelligence levels, Intelligence Testing, Intelligence tests, Uses and abuses of intelligence tests, relevance of intelligence and aptitude for Allied Health Sciences

Unit-III: Life style, Health, Stress and Coping Behavior

Cultural evolution, Life style choices and consequences, Healthy and Unhealthy life styles.Nutrition, Physical fitness, Smoking and Drinking. Stress and Health, The biological basis of stress, Stress and Physical functioning, Coping with stress, Adjustment a lifelong process. Cognitive appraisal and Stress, Stressful life styles, Coping with everyday stress, Sources of stress, Coping styles and Strategies, Stress inoculation training.

Unit IV : Psychology of Vulnerable Individuals

Psychology of the challenged, types of disability, effects of disability, psychology of women, women and health, dealing with alcoholics and their families, post-traumatic stress disorder, psychology of the sick and ill, how patients react to chronic illness, effects of illness and hospitalization

REFERENCE BOOKS

1. Clifford T. Morgan, Richard a. King, John R. Weis and John Schopler, —Introduction to Psychology‖ – 7th Edition. Tata McGraw Hill Book Co. New Delhi,1993.
2. Ernest R. Hillgard, Richard C. Atkinson, Rita L. Atkinson, —Introductionto Psychology‖6thEdition,OxfordIBHpublishingCo.Pvt.Ltd.,NewDelhi,1975.
3. Baron.A. Robert, Psychology, Pearson Education VthEd.,2002
4. Psychology –the science of behavior –fifth edition1982-Neil Carson-William Bulkist- Allyn andBacon.

GENERIC ELECTIVE COURSES – II YEAR SOCIOLOGY

NAME OF THE SUBJECT PAPER	**: SOCIOLOGY**
DURATION OF THEORY CLASSES	**: 64 Hrs**
EXAMINATION	**: 50 Marks (40 U + 10IA)**
NO UNIVERSITY PRACTICAL EXAMINATION	
DURATION OF THEORY EXAMINATION	**: 1 ½ Hrs**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: II YEAR**

THEORY (64 Hours)

Unit 1: Sociology: Discipline and Perspective

- Thinking Sociologically
- Emergence of Sociology, Sociology as a science; Sociology and Common Sense
- Some Basic concepts: Association; Aggregates: Community, Categories, Groups and its Forms; Status and Role; Norms and Values.
- Individual and Society; Socialization: Concept and Agencies; Culture – meaning and characteristics; Types of culture – popular, elitist, folk, and consumer cultures; Pluralism and Multiculturalism, Culture and Personality.

Unit 2: Sociology and Other Social Sciences

- Sociology and Social Anthropology
- Sociology &Psychology
- Sociology &History

Unit 3: Human Society

- Social Institutions and Social Processes

- Social control: meaning, agencies and mechanisms
- Conformity and Deviance.
- Social Change, definition, factors, Social Mobility Readings

1. Anthony Giddens :Sociology
2. G. Rocher: A General Introduction to Sociology
3. George Ritzer. Encyclopaedia of sociology
4. Harry M. Johnson Sociology

GENERIC ELECTIVE COURSES – II YEAR
ENTREPRENEURSHIP ESSENTIALS

NAME OF THE SUBJECT PAPER	**: Entrepreneurship essentials**
DURATION OF THEORY CLASSES	**: 64Hrs**
EXAMINATION	**: 50 Marks (40 U + 10 IA)**
NO UNIVERSITY PRACTICAL EXAMINATION	
DURATION OF THEORY EXAMINATION	**: 1 ½ Hrs**
YEAR IN WHICH THE SUBJECT PAPER IS TAUGHT	**: II YEAR**

THEORY (64 Hours)

LEARNING OBJECTIVES

- To understand the fit between you and your entrepreneurs all ambitions
- To find a problem worth solving
- To identify your customers
- To develop a solution for your customers' problems and problem solution
- To build and demonstrate an MVP
- Tostructureabusinessmodelaroundtheproblem,customer,andsolutionand present your Business Model Canvas

UNIT – I ORIENTATION

What is entrepreneurship – myths about entrepreneurship – impact of an entrepreneur and social entrepreneurship – wealth building and making an impact

IDEA/PROBLEM

What is a business opportunity and how to identify it - Methods for finding and understanding problems - (Observation, Questioning, DT, Jobs to be done (JTBD) - Introduction to Design Thinking - Process and Examples - Generate ideas that are potential solutions to the problem identified.

UNIT – II CUSTOMER

The difference between a consumer and a customer (decision maker); Market Types, Segmentation and Targeting, Defining the personas; Understanding Early Adopters

and Customer Adoption Patterns - Identify the innovators and early adopters for start-up - Basics of Lean Approach and Canvas; Types of Business Models (b2b; b2c)

UNIT – III
BUSINESS MODEL AND VALIDATION

Introduction to Risks; Identify and document your assumptions (Hypotheses); Identify the riskiest parts of Plan - Develop the Solution Demo - Sizing the Opportunity - Building an MVP (Minimum Viable Product)

UNIT – IV
MONEY AND TEAM

Revenue Streams: Basics of how companies make money - Understand income, costs, gross and net margins - Identify primary and secondary revenue streams - Pricing and Costs - Financing Your New Venture - Team Building: Role of a good team in a venture's success; What to look for in a team; How do you ensure there is a good fit? Defining clear roles and responsibilities

UNIT – V
MARKETING AND SALES

Positioning – channels and strategy – sales planning – Importance of project management to launch and track progress - Understanding time management, workflow, and delegation of tasks– Business regulation: Basics of business regulations of starting and operating a business - Importance of being compliant and keeping proper documentation

LEARNING OUTCOMES

- This course will give the students the foundational experience of the entire cycle of entrepreneurship, through a combination of theory and practice.
- Students will learn what it takes to be an entrepreneur, recognizing business opportunities and the basics to create launch and manage new businesses.
- The participating students will create a ‗campus venture' or a "real" venture of their own to practice the concepts taught during the program. The course is built in a modular fashion such that colleges can tailor their offerings to cover either the entire offering (idea to an MVP) or limit to building a business model.

III YEAR

B.Sc – OPERATION THEATRETECHNOLOGY
FACULTY OF ALLIED HEALTH SCIENCES
SRI BALAJIVIDYAPEETH
(Deemed to be University)
Accredited by NAAC with 'A' Grade

III YEAR

CORE SUBJECTS

1. Operation Theatre Technology –Clinical
2. Operation Theatre Technology –Applied
3. Operation Theatre Technology -Advanced

Discipline Elective Course (DEC) – Choose any TWO

1. Biomedical Waste Management
2. Basic Assessment & Support in Intensive Care Unit
3. Basic Airway Management
4. Palliative care

AHS COURSE CONTENT THIRD YEAR B.SC. OPERATION THEATRE (OTT)

Faculty code	Category	Course title	Hours					Credits				
AHS	Core theory OTT	Subjects	Theory	Practical	Tutorials	Clinical training	Total hours	Lecture	Practical	Tutorials	Clinical training	Total credits
AHS	OTT -9	Operation Theatre Technology – Clinical	64	64				4	2			6
AHS	OTT -10	Operation Theatre Technology – Applied	80		32			5		1		6
AHS	OTT -11	Operation Theatre Technology - Advanced	80		32			5		1		6
AHS	OTT-CT 2	Clinical Training OTT 9 to 11				448					14	14
AHS	DE 1-8	Student's choice	64					4				4
AHS	DE 1-8	Student's choice	64					4				4
			352	**64**	**64**	**448**	**928**	**22**	**2**	**2**	**14**	**40**

SCHEME OF EXAMINATION

Papers	Subject	Theory		Practical			Grand total (700)	Min pass marks (350)
		UE	IA	UE	IA	UIA*		
OTT -9	Operation Theatre Technology – Clinical	80	20	80	20		200	100
OTT -10	Operation Theatre Technology – Applied	80	20				100	50
OTT -11	Operation Theatre Technology - Advanced	80	20				100	50
OTT-CT 2	Clinical Training OTT 9 to 11					100	100	50
DEC	Discipline elective	80	20				100	50
DEC	Discipline elective	80	20				100	50

OT TECHNOLOGY - CLINICAL

PAPER OTT 9: OT TECHNOLOGY - CLINICAL

NAME OF THE SUBJECT	**: OT TECHNOLOGY - CLINICAL**
DURATION OF THEORY CLASSES	**: 64 HOURS**
DURATION OF PRACTICAL SESSION	**: 64 HOURS**
THEORY EXAMINATION	**: 100 MARKS (80 U+ 20IA)**
DURATION OF THEORY EXAMINATION	**: 3 HOURS**
PRACTICAL EXAMINATION	**: NIL**
YEAR IN WHICH SUBJECT PAPER IS TAUGHT	**: III YEAR**

COURSE DESCRIPTION

The course is designed to acquire knowledge about the principles of anesthesia and equipments and to ensure that the students understand the clinical aspects in the practice of operation theatre technology.

OBJECTIVES

At the end of the course, the student will be able to

1. Learn & practice the principles of general and regional anesthesia techniques.

2. Learn &practice about the anesthesia machine, breathing circuits, airway aids, resuscitation equipment and ventilator support.

3.Learn & practice the pharmacology of anesthesia drugs.

4. Learn & practice diagnostic procedures and surgical equipment

PROGRAMME OUTCOME

At the end of 4 years of this training session, this curriculum will make students to achieve the following objectives:

OT T -PO1: Performs the duty as an Operation Theatre Technologist with leadership qualities having a good written & communication skill and also skilled at computer applications including E-library.

OT T -PO2: To gain knowledge about laboratory safety precautions, biomedical waste management adhering to the environmental needs of the society and preventing the spread of infectious diseases.

OT T -PO3: Understanding the structure and functions of different organs in normal human body.

OT T -PO4: Ability to perform urinalysis, Serology, hematology, cytology, blood banking, biochemical, microbiological parameters and drug reactions.
OT T -PO5: To make students assist Anesthesiologist during administration and monitoring of Anesthesia including cardiopulmonary resuscitation.
OT T -PO6: To make students in effective participation of basic clinical skills, application of health promotion and disease prevention strategies.
OT T -PO7: To make students aware of the basic surgical and ethical principles, infection control protocol followed in operating room complex.
OT T -PO8: To make students participate in OT administration, organization and quality improvement.
OT T -PO9: To make students understand the pharmacological principles pertaining to the drugs used in anesthesia and critical care unit.
OT T -PO10: To build efficient technologist in handling Anesthesia monitors, Anesthesia & surgical Equipment‘s practice.
OT T -PO11: To make students effective in preparation of operation theatre for all super specialty surgeries & effective participation in labor analgesia, trauma care and management.
OT T -PO 12: To make students assist surgeons in all elective and emergency surgical procedures and providing basic general care and expertise in pulmonology radiological studies, interventional cardiology procedures.
OT T -PO 13: To identify various life style disorders and with due counseling& guidance advising the patients with proper diet, hygiene and Yoga to keep the body, mind, soul and behavior healthy.

COURSE OUTCOME

The students must acquire the relevant knowledge & learn the skills about the following competencies:
OTT CL CO 1: Learn & practice the principles of general and regional anesthesia techniques.
OTT CLCO 2: Learn & practice the principles of gas plant, pipelines and anesthesia equipment.
OTT CL CO 3: Learn & practice about the anesthesia machine, breathing circuits, airway aids, resuscitation equipment and ventilator support.
OTT CL CO 4: Learn & practice the basics of critical care and emergency medical services department.
OTT CL CO 5: Learn & practice the pharmacology of anesthesia drugs.
OTT CL CO 6: Learn & practice the risks related to medical devices and energy devices.
OTT CL CO 7: Learn & practice diagnostic procedures and surgical equipment

UNIT	TOPIC	HOURS
I.	**PRE ANESTHETIC CARE (PAC)** 1. Pre anesthetic assessment, History –, past history -disease / Surgery / and personal history - Smoking / alcohol 2. General physical assessment, systemic examination – CVS, RS,CNS 3. ASAClassifications 4. INVESTIGATIONS Routine hematological - their significance - Urine - E.C.G. - Chest X - ray - Special -Endocrine, hormonal assays-thyroid **PREOPERATIVE CHECKLIST** • Machine - Checking the machine, 02, N20, suction apparatus • Laryngoscopes, ET tubes,airways • Things for IV accessibility • Other monitoring systems • Drugs - Emergency drugs & Anesthetic drugs **INTRAOPERATIVE MANAGEMENT** • Confirm the identification of the patient • Monitoring - minimum standards • Non-invasive & Invasive monitoring- setting up • Induction - drugs used • Difficult airway management • Endo-tracheal intubation • Maintenance of anesthesia • Positioning of the patient • Blood / fluid & electrolyte balance • Reversal from anesthesia - drugs used • Transferring the patient • Recovery room – set up and things needed **POST OPERATIVE COMPLICATIONS & MANAGEMENT** • Respiratory complication • Cardiovascular complications • Neurological complication • Gastrointestinal complications • Renal complication • Hepatic complication • Pain • Thermal perturbation	**24**

	• Anaphylactic reactions • Complication of different complication • Ocular complication **MEDICAL GAS SUPPLY** • Compressed gas cylinders • Color coding • Cylinder valves; pin index. • Gas piping system • Recommendations for piping system • Alarms & safety devices. **ANESTHESIA MACHINE** • High pressure system • Intermediate pressure system • Low pressure system • Other parts of anesthesia machine • Breathing circuit • Components of closed circuit • Checking anesthesia machine and circuits • Safety features of anaesthesia delivery systems ▫ **EQUIPMENTS:** • Airways • Facemask • Ambu bag resuscitator • Laryngoscopes • Supraglottic airway devices • Infraglottis airway devices • Nasal intubation • Oxygen delivery systems in non – intubated patient • Humdifiaction devices • Sterilization of the anaesthesia equipment. **MONITORING** • ECG • Sp02 • Temperature • IBP • CVP • Neuromuscular Monitor • Capnography • Basics of ultrasound **FUILDS AND BLOOD TRANSFUSION:** • fluids	

	• crystalloids • colloids • fluid management • blood transfusion • complication of blood transfusion • autologous blood transfusion **ANAESTHESTICS:** • Inhalational agents- classification, nitrousoxide, entonox, halothane, esflurane, sevoflurane, enflurane,ether, • Gaeses- oxygen, co2,helium • Intravenous anesthestics-thiopentone,propofol, etomidate, bzd,ketamine • Muscle relaxants-d epolarizing agents, non depolarizing agents, centrally actingmuscle relaxants,reversal ofblock. • Local anesthestics- classification, mechanism of action of local anesthestics, individual agents. **PERIPHERAL NERVE BLOCK:** • Technique • Blocks of upper limb • Blocks of lower limb • Blocks of head and neck, thoracic and abdominal area. • Contraindications for peripheral nerve blocks **CENTRAL NEURAXIAL BLOCKS:** • Spinal anaesthesia • Spinal anaesthesia in children • Epidural anaesthesia • Saddle block • Combined spinal and epidural block • Caudal block	
II.	**PREOPERATIVE CHECKLIST** • Machine - Checking the machine, 02, N20, suction apparatus • Laryngoscopes, ET tubes,airways • Things for IV accessibility • Other monitoring systems • Drugs - Emergency drugs & Anesthetic drugs **PREMEDICATION:** • Instructions related to modification in pre- exiting medical theraphy • Preoperative instructions • Premedication-goals • components of drug storage • proper drug storage	**6**

	• storage and maintainence of drugs • storage permiseses • arrangement of drugs on shelves • store room ,dispensary • drug exipry • controlled drug regulation • storage and recording of controlled drug use.	
III.	**DRUG CALCULATION AND USAGE IN OT :** • various methods for calculating drug. • Formula- calculating dose, calculating concenteration, calculating flow rate, calculating the drip rate, body surface area,fuildtheraphy. • Proportion method, dimensional analysis,safe dose, sequential method, random method • Percent and ratio strength,temperature conversions, **RISKS RELATED TO MEDICAL DEVICES AND ENERGYSOURCES** • Common hazards of medical devices • Risk of exposure to electric current • Physiological effects of electricity on the body • Electrical safety testing and procedure. **CHEMICAL AND BIOLOGICAL AND MUSCULOSKELETAL RISK** • Introduction • Physical and accidental hazards • Radiation • Accidental hazards • Chemical hazards • Fire hazards • Other hazards • Catastrophic events in the operating room, emergency and disaster preparedness plan for the operating theatre.	**15**
IV.	**ENERGY SOURCES IN SURGERY**: • mono polar instruements • bipolar instruments • electro surgical accidents • laser surgery • ultrasonic devices • argon beamcoagulation • harmonic • ultrasonic dissector • electro cutting	**5**
V.	**DIAGNOSTIC AND ASSESSMENT PROCEDURES** • intravenous catheter insertion • heparin lock • surgical skinprepration	

	• intra atrial insertion • surgical dressing • suture removal • ambulation • cpr • acls • artificial airway management • oxygen administration procedure. • Counting procedure • Et tube intubation, extubation,suctioning • Tracheostomysuctioning • Chestphysiotheraphy • Postural drainage. **SURGICAL INSTRUMENTS**: • Classification • Care for surgical instruments • Electro surgical instruments • Handling of instruments	**14**

PRACTICAL - 64 HOURS

COMPONENTS	MAXIMUM MARKS	MARKS DISTRIBUTION
RECORD	10 MARKS	RECORD SUBMISSION
SPOTTERS	30 MARKS	(DRUGS & EQUIPMENTS-15*2=30)
VIVA	40 MARKS	STATION A : MACHINE -10 MARKS, STATION B : DRUGS & FLUIDS -10 MARKS, STATION C : EQUIPMENTS – 10 MARKS STATION D:BLS-10 MARKS
TOTAL	80 MARKS	

MAXIMUM MARKS: 80 MARKS + I.A 20 MARKS = 100 MARKS

MINIMUM PASS MARKS: 50 MARKS

TOTAL HOURS: 3 HOURS

The students must acquire the relevant knowledge & learn the skills about the following:

1. Machine Check
2. Setting Up For Fibre OpticIntubation
3. Setting Up For Invasive Monitoring
4. Monitoring
5. Cleaning Of Anesthesia Equipments
6. Resuscitation Equipments (Ambu Bag, Defibrillator)
7. Mounting & Filling Of Desflurane Vapourizer
8. Checking The BainsCircuit
9. Replacement Of Absorb
10. Checking The Et Tube
11. Checking The Laryngoscopes
12. Checking The Suction Apparatus.
13. PreparationOf Intubating Tray
14. Preparation Of Supraglottic Devices (Intubation , Cleaning)
15. Tray Set Up – Spinal Tray& Sterilization
16. Tray Set Up –Cvp, Arterial Line & Sterilization
17. Preparation For Nerve Block
18. Preparation For Iv Line Therapy
19. Diathermy Checking (Monopolar,Bipolar)
20. Manual Bp Checking (Palpatory, Ausculatory)
21. Checking ThePulse.
22. Preparation For SubmentalIntubation

EQUIPMENTS LIST- VIVA

MUST TO KNOW

1. FACE MASK
2. ORALAIRWAY
3. NASALAIRWAY
4. ET TUBE
5. LAYNGOSCOPE
6. MACCINTOSH, MILLER, MACCOYBLADE
7. BOUGIE
8. MAGILLFORCEPS
9. SUCTIONCATHETER
10. IVVENFLON
11. EPIDURALKIT
12. SPINALNEEDLE
13. IV FLUIDS (NS, RL, DNS , 5 % DEXTROSE, PLASMALYTE, VOLUVEN)
14. BAIN'SCIRCUIT
15. AMBUBAG
16. JRMCIRCUIT
17. IV SET
18. LMA (SUPREME, CLASSIC, PRSSEAL,I GEL)
19. OXYGENMASK
20. CVPKIT

EQUIPMENTS LIST (SPOTTERS)

1. FLEXOMETALLIC TUBE
2. RYLESTUBE
3. NASALPRONGS
4. BLOODSET
5. TUBEEXCHANGER
6. STYLET
7. JELCO
8. RAE TUBE
9. MICRO LARYNGEALTUBE
10. PAEDIATRIC BURETTESET
11. BLOODWARMER
12. GLUCOMETER
13. TOFWATCH
14. TRUE VIEW
15. RETROMOLAR
16. KINGVISION
17. JETVENTILATOR
18. ENTONOX
19. COMBINED SPINAL EPIDURALKIT

20. ACTMACHINE
21. ET TUBE CUFF PRESSUREMONITOR

ANESTHEISA DRUGS LIST – VIVA

1. PROPOFOL
2. THIOPENTONE
3. KETAMINE
4. ATRACURIUM
5. VECURONIUM
6. SUCCINYL CHOLINE
7. MORPHINE
8. FENTANYL
9. PETHIDINE
10. PENTAZOCAINE
11. MIDAZOLAM
12. PROMETHAZINE
13. ATROPINE
14. GLYCOPYRROLATE
15. ADRENALINE
16. EPHEDRINE
17. MEPHENTERMINE
18. HEPARIN
19. OXYTOCIN
20. METACLOPRAMIDE
21. ONDANSETERON
22. RANITIDINE
23. PARACETOMOL
24. KETROLAC
25. TRAMADOL
26. METOPROLOL
27. DEXAMETHASONE
28. AVIL
29. HYDROCORTISONE
30. DERIPHYLLINE
31. XYLOCARD
32. LASIX
33. TRAPIC
34. LOCAL ANESTHETICS (XYLOCAINE 2 % , XYLOCAINE + ADRENALINE 2 % ,BUPIVACAINE, ROPIVACAINE, 2 % XYLOCAINE JELLY)
35. IV FLUIDS (NS,RL,DNS,COLLOID,PLASMALYTE,25%DEXTROSE,5%DEXTROSE,3%NACL)
36. INSULIN

ANESTHESIA DRUGS LIST – SPOTTERS

1. NOR-ADRENALINE
2. DOPAMINE
3. DOBUTAMINE
4. PHENYLEPHRINE
5. METHERGIN
6. PROSTAGLANDIN
7. AMIODARONE
8. ADENOSINE
9. CALCIUMGLUCONATE
10. POTASSIUMCHLORIDE
11. SODABICARBONATE
12. MAGNESIUMSULPHATE
13. PROTAMINE
14. SNP
15. NTG
16. NALBUPHINE
17. BUPRENORPHINE
18. FLUMAZENIL
19. NALOXONE
20. PANCURONIUM

METHODS OF TEACHING

1. Lecture cum discussion
2. Demonstration
3. Clinical postings
4. Practical work record

METHODS OF EVALUATION

1. Written Test
2. Log Book
3. Assignments
4. Oral Presentations

REFERENCE BOOKS

1. Clinical Anaesthesiology – 6 th edition Morgan
2. Principlesofanaesthesiaequipment‘s–Yasodhanandhaariti
3. Comparative pharmacology for anaesthetists- Vipindhama
4. Milleranaesthesia
5. Textbook of operation theatre technology - Dr.B C Bhagavan

BLUE PRINT

UNIT	WEIGHTAGE %	MARKS ALLOTED (80 marks)	LONG ANSWER (10 marks)	SHORT ANSWER (6 marks)	VERY SHORT ANSWER (3 marks)
1	40	32	2 2*	1 1*	2 1*
2	15	12	-	1	2 1*
3	15	12	-	1	2
4	15	12	-	1	2
5	15	12	-	1	2

The duration of Examination (University) is Three (3) hours.

The total marks for the University Examination will be 100marks.

Long Answer Questions : 2 X 10 = 20 marks (Choice 2 out of4)

Short Answer Questions : 5 X 6 = 30 marks (Choice 5 out of6)

Very Short Answer Questions: 10 X3 = 30 marks (Choice 10 out of12)

TOTAL = Theory 80 + IA 20 = 100marks

MODEL QUESTION PAPER

TIME:3 HOURS **MAXIMUM MARKS:80**

Illustrate your answers with suitable diagrams wherever necessary.

A. Long answer questions (2X10 = 20marks)

1. a) Describe the mandatory checklist that undertaken to avoid anesthetic mishaps before using Anesthesia machine. Or
   b) Discuss in brief about the safety measures in anesthesia machine.
2. a) With the help of schematic diagram classify breathing circuits under Mapleson system of classification. Or
   b) Enumerate the various inhalational agents used in operation theatre and write a note on vaporizer.

B. Short Answer Questions -Answer any 5 (5X 6 =30marks)

1. ASA Physical status classification.
2. Bain circuit.
3. Advantages of pre-medication.
4. Non invasive monitoring.
5. Discuss advantages of Central Pipeline System and its safety features
6. Hazards of Blood transfusion.

C. Very Short answer questions –Answer any 10 (10x3 = 30marks)

1. Mention three routine investigations asked inPAC
2. Any 3 criteria of adequate reversal from effects of non depolarizing musclerelaxants.
3. Any three Indications of Central venous pressure monitoring
4. Importance of oxygen saturation in general anaesthesia.
5. Any 3 crystalloid solutions used in operating room.
6. Name any 3 drugs in emergency tray.
7. Parts of a Laryngoscope.
8. Colour coding of pipelines &cylinders.
9. Yoke Assembly.
10. Indication for use forde fibrillator
11. Composition of sodalime
12. Draw ET tube and label its parts.

OT TECHNOLOGY- APPLIED

PAPER OTT-10: OT TECHNOLOGY- APPLIED

NAME OF THE SUBJECT : OT-10 OT TECHNOLOGY-APPLIED

DURATION OF THEORY CLASSES : 80 HOURS

DURATION OF TUTORIAL SESSION : 32 HOURS

THEORY EXAMINATION : 100 MARKS (80 U+ 20 IA)

DURATION OF THEORY EXAMINATION : 3 HOURS

PRACTICAL EXAMINATION : 100 MARKS

YEAR IN WHICH SUBJECT PAPER IS TAUGHT : III YEAR

COURSE DESCRIPTION

The course is designed to acquire knowledge about the principles of surgery and equipments and to ensure that the students understand the clinical aspects in the practice of operation theatre technology.

OBJECTIVES

At the end of the course, the student will be able to

1. Learn the surgical principles and instruments used in abdominal surgery, gastrointestinal surgery, and breast surgery ,and thyroid surgery, surgery of the biliary system, liver, and pancreasspleen.

2.Learn the surgical principles and instruments used in gynecological and obstetrics surgery, ophthalmic surgery, genital system surgery, surgery of the bladder, ureter and kidneys.

PROGRAMME OUTCOME

At the end of 4 years of this training session, this curriculum will make students to achieve the following objectives:

OT T -PO1: Performs the duty as an Operation Theatre Technologist with leadership qualities having a good written & communication skill and also skilled at computer applications including E-library.

OT T -PO2: To gain knowledge about laboratory safety precautions, biomedical waste management adhering to the environmental needs of the society and preventing the spread of infectious diseases.

OT T -PO3: Understanding the structure and functions of different organs in normal human body.

OT T -PO4: Ability to perform urinalysis, Serology, haematology, cytology, blood banking, biochemical, microbiological parameters and drug reactions.
OT T -PO5: To make students assist Anaesthesiologist during administration and monitoring of Anaesthesia including cardiopulmonary resuscitation.
OT T -PO6: To make students in effective participation of basic clinical skills, application of health promotion and disease prevention strategies.
OT T -PO7: To make students aware of the basic surgical and ethical principles, infection control protocol followed in operating room complex.
OT T -PO8: To make students participate in OT administration, organization and quality improvement.
OT T -PO9: To make students understand the pharmacological principles pertaining to the drugs used in anaesthesia and critical care unit.
OT T -PO10: To build efficient technologist in handling Anaesthesia monitors, Anaesthesia& surgical Equipment's practice.
OT T -PO11: To make students effective in preparation of operation theatre for all super specialty surgeries & effective participation in labour analgesia, trauma care and management.
OT T -PO 12: To make students assist surgeons in all elective and emergency surgical procedures and providing basic general care and expertise in pulmonology radiological studies, interventional cardiology procedures.
OT T -PO 13: To identify various life style disorders and with due counseling& guidance advising the patients with proper diet, hygiene and Yoga to keep the body, mind, soul and behaviour healthy.

COURSE OUTCOME

The students must acquire the relevant knowledge & learn the skills about the following competencies:
OTT APP CO1: Learn& practice the surgical principles and instruments used in abdominal surgery, gastrointestinal surgery, and breast surgery, and thyroid surgery, surgery of the biliary system, liver, and pancreas spleen.
OTT APP CO 2: Learn& practice the surgical principles and instruments used in gynecological and obstetrics surgery, ophthalmic surgery, genital system surgery, surgery of the bladder, ureter and kidneys.

UNIT	TOPIC	HOURS
I.	**a) Abdominal Wall Surgery** • Introduction • Relevant anatomy of the anterior wall • Wound healing • Opening the abdomen: skin preparation • Incision &hemostasis • Specific incisions: choices and techniques. • Principle of abdominal wall closure	

	• Wound complications • Instruments used in surgery. **b) Gastrointestinal Surgery** • Introduction • Relevant anatomy, indication for surgery • skin preparation • Incision &hemostasis • Specific incisions: choices and techniques. • Closure & suturing • Wound complications • Instruments used in surgery. • Handling of scopes	**20 HOURS + 8 TUTORIALS**
II.	**a) Surgery of the Biliary System, Liver, Pancreas and Spleen** • Introduction • Relevant anatomy of the biliary system, pancreas, spleen,liver. • preparation • Incision &hemostasis • Specific incisions: choices and techniques. • Laparoscopic procedures. • Wound complications • Instruments used in surgery. **b) Breast Surgery** • Indication • Relevant anatomy of the breast. • Special Instruments used in surgery. • Surgical complications	**20 HOURS + 8 TUTORIALS**
III.	**a) Thyroid Surgery** • Indication • Relevant anatomy of the thyroid gland • skin preparation • positioning • Incision &hemostasis • Specific incisions: choices and techniques. • Wound complications • Special Instruments used in surgery. **b) Gynecological and Operative Obstetrical Procedures** • Introduction • Common gynecological procedures • Obstetrical emergencies • Positioning • Handling of laparoscopic machine and monitors, scopes. • Surgical complications • Instruments used in surgery	**20 HOURS + 8 TUTORIALS**

IV.	**a) Ophthalmic Surgery** • Indication • Common surgical procedures. • Handling of intraocular lens • Special Instruments used in surgery. **b) Surgery of the Genital System** • Introduction • Relevant anatomy of male & female reproductive system • Common surgical procedures. • Surgical complications • Management **c) Surgery of the Bladder and Ureters and Kidneys** • Introduction • Relevant anatomy of the KUB • Common urological procedures • Laparoscopic procedures, handling scopes. • Specific incisions: choices and techniques. • Wound complications • Handling of scopes.	**20 HOURS + 8 TUTORIALS**

METHODS OF TEACHING

- Lecture cum discussion
- Demonstration
- Clinical postings
- Practical work record

METHODS OF EVALUATION

- Written Test
- Logbook
- Assignments
- Oral Presentations

REFERENCE BOOKS

- Textbook of operation theatre technology - Dr.B CBhagavan
- Manual of Anesthesia For OT Technicians -AhanathaPillai
- Manual of Operating Room Discipline & Protocol - Inderdeep Singh Alia
- .Handbook of OT Technicians -KilpadiArun

BLUE PRINT

UNIT	WEIGHTAGE %	MARKS ALLOTED (80 marks)	LONG ANSWER (10 marks)	SHORT ANSWER (6 marks)	VERY SHORT ANSWER (3 marks)
1	27	22	1 1*	1 1*	2 1*
2	24	19	1 1*	-	3
3	23	18	-	2	2 1*
4	26	21	-	2	3

The duration of Examination (University) is Three (3) hours.

The total marks for the University Examination will be 100marks

Long Answer Questions : 2 X 10 = 20 marks (Choice 2 out of4)

Short Answer Questions : 5 X 6 = 30 marks (Choice 5 out of6)

Very Short Answer Questions: 10 X3 = 30 marks (Choice 10 out of12)

TOTAL = Theory 80 + IA 20 = 100marks

MODEL QUESTION PAPER

TIME:3 HOURS **MAXIMUM MARKS:80**

Illustrate your answers with suitable diagrams wherever necessary.

A. Long answer questions ANY ONE (2x10=20)

1. Explain in detail about abdominal surgery. or b)Disorders of Bones and ligaments
2. Explain in detail about surgery of kidneys. b) explain briefly about GI disorders.

B. Short answer questions -Answer any 5 questions (5x6=30)

1. Describe about muscular system.
2. Integumentary system.
3. Classification of drugs acting on nerves.
4. Describe the morphology of liver and functions.
5. Disorders of Bones and ligaments
6. Mention the causes of Blood pressure

C. Answer any TEN of the following out of twelve questions (10x3=30)

1. Disorders of ligaments.
2. Treatment of respiratory system.
3. Define diaphragm
4. Define osteoporosis.
5. What is degenerative joint diseases.
6. How to prevent of bed sores.
7. What are the disorders of GIT.
8. What is basic effect of drugs.
9. Dehydration
10. Define skeletal muscles.
11. Hormones produce by kidney.
12. What are the microbes causes infection in Urinary tract.

OT TECHNOLOGY- ADVANCED

PAPER: OTT 11 - OT TECHNOLOGY- ADVANCED

NAME OF THE SUBJECT : OT TECHNOLOGY- ADVANCED

DURATION OF THEORY CLASSES : 80 HOURS

DURATION OF TUTORIAL SESSION : 32 HOURS

THEORY EXAMINATION : 100 MARKS (80 U+ 20 IA)

DURATION OF THEORY EXAMINATION : 3 HOURS

PRACTICAL EXAMINATION : 100 MARKS

YEAR IN WHICH SUBJECT PAPER IS TAUGHT : III YEAR

COURSE DESCRIPTION

The course is designed to acquire knowledge about the principles of surgery and equipments and to ensure that the students understand the clinical aspects in the practice of operation theatre technology.

OBJECTIVES

At the end of the course, the student will be able to

1. Learn the surgical principles and instruments used in abdominal surgery, gastrointestinal surgery, and breast surgery ,and thyroid surgery, surgery of the biliary system, liver, and pancreas spleen.

2.Learn the surgical principles and instruments used in gynecological and obstetrics surgery, ophthalmic surgery, genital system surgery, surgery of the bladder, ureter and kidneys.

PROGRAMME OUTCOME

At the end of 4 years of this training session, this curriculum will make students to achieve the following objectives:

OT T -PO1: Performs the duty as an Operation Theatre Technologist with leadership qualities having a good written & communication skill and also skilled at computer applications including E-library.

OT T -PO2: To gain knowledge about laboratory safety precautions, biomedical waste management adhering to the environmental needs of the society and preventing the spread of infectious diseases.

OT T -PO3: Understanding the structure and functions of different organs in normal human body.

OT T -PO4: Ability to perform urinalysis, Serology, hematology, cytology, blood banking, biochemical, microbiological parameters and drug reactions.
OT T -PO5: To make students assist Anesthesiologist during administration and monitoring of Anesthesia including cardiopulmonary resuscitation.
OT T -PO6: To make students in effective participation of basic clinical skills, application of health promotion and disease prevention strategies.
OT T -PO7: To make students aware of the basic surgical and ethical principles, infection control protocol followed in operating room complex.
OT T -PO8: To make students participate in OT administration, organization and quality improvement.
OT T -PO9: To make students understand the pharmacological principles pertaining to the drugs used in anesthesia and critical care unit.
OT T -PO10: To build efficient technologist in handling Anesthesia monitors, Anesthesia & surgical Equipment's practice.
OT T -PO11: To make students effective in preparation of operation theatre for all super specialty surgeries & effective participation in labor analgesia, trauma care and management.
OT T -PO 12: To make students assist surgeons in all elective and emergency surgical procedures and providing basic general care and expertise in pulmonology radiological studies, interventional cardiology procedures.
OT T -PO 13: To identify various life style disorders and with due counseling& guidance advising the patients with proper diet, hygiene and Yoga to keep the body, mind, soul and behavior healthy.

COURSE OUTCOME

The students must acquire the relevant knowledge & learn the skills about the following competencies:
OTT ADV CO 1: Learn & practice the surgical principles and instruments used in ENT surgery, neck and salivary gland surgery, oral &maxillofacial surgery, plastic & reconstructive surgery, orthopedic surgery, peripheral vascular surgery, thoracic and pulmonary surgery.
OTT ADV CO 2: Learn& practice the surgical principles and instruments used in cardiac, neuro, pediatric, minimally invasive surgery.

UNIT	TOPIC	HOURS
I.	**SURGERY OF THE EAR:** • Introduction • Definition • Purpose • Indications, description • Types of surgeries • Post-operative nursing care • Complication.	**20 HOURS + 7 TUTORIALS**

	SURGERY OF THE NASAL CAVITY, OROPHARYNX ANDLARYNX: • Introduction • Definition • Purpose • Indications, description • Types of surgeries • Post-operative nursing care • Complication. **SURGERY OF THE NECK AND SALIVARY GLANDS:** • surgical anatomy • sub mandibularsialadenitis • Sjogren'ssyndrome, • parotid fistula • peripheral nerve repair and transfers • acuteparotitis, salivary gland tumors, freyssyndrome, mikuliczdisease.	
II.	**ORAL AND MAXILLOFACIAL SURGERY:** • Oral cancer • General principles, carcinoma of the tongue, lip,bucal mucosa, maxillaryantrum • Nasopharynx cancer, odontomas , epulis, Vincent angina • Premalignant conditions, ulcers of the tongue,begnin lesion in the oral cavity. **PLASTIC AND RECONSTRUCTIVE SURGERY:** • Introduction • Skin grafting • Flaps • Reconstructive surgeries • Cosmetic procedures **ORTHOPEDIC SURGERY:** • Introduction • Definition • Purpose • Indications, description • Types of orthopedic surgery • Post-operative nursing care • Complication, amputation.	**20 HOURS + 7 TUTORIALS**
III.	**PERIPHERAL VASCULARSURGERY:** • Lower limb ischemia • Acute arterial occlusions, frost bite, fat embolism, collateral circulations, criticallimbischemia,ainhum, reperfusion injuries , air embolism. • Raynaud's disease, axillary vein thrombosis, gangrene, acrocyanosis, subclavian steal syndrome,	**15 HOURS + 6 TUTORIALS**

	• Deep veijnthrombosis • Varicose vein **THORACIC AND PULOMONARY SURGERY:** • Introduction • Definition • Purpose • Indications, description • Types of surgeries • Post-operative nursing care • Complication.	
IV.	**CARDIAC SURGERY:** • Introduction • Definitions • Purpose • Indications • Types of heart surgery • Surgical procedures • open heart surgery • preparation • robotic heart surgery • recovery • early post-operative care • late post-operative care • complications and precautions **PEDIATRIC SURGERY:** • Introduction • Indications • Considerations • Intraoperative pediatric patient care consideration • Post operative pediatric patient care	**15 HOURS + 6 TUTORIALS**
V.	**NEURO SURGERY:** • Introduction • Definitions • Indications • Descriptions • Types of neurosurgery • Patient preparations • Positioning , anesthesia, instruments used for euro surgery • Neurosurgical procedure • Trends in neurosurgery • Neuro nursing and complications **MINIMALLY INVASIVE SURGERY:** • Excision of skin lesions • Muscle biopsy • Excision of subcutaneouslipoma • Incision and drainage of an abscess • Percutaneous insertion of catheter	**10 HOURS + 6 TUTORIALS**

METHODS OF TEACHING

1. Lecture cum discussion
2. Demonstration
3. Clinical postings
4. Practical work record

METHODS OF EVALUATION

1. Written Test
2. Logbook
3. Assignments
4. Oral Presentations

REFERENCE BOOKS

1. Textbook of operation theatre technology - Dr.B C Bhagavan

2.Manual Of Anesthesia For OT Technicians -AhanathaPillai

3.Manual Of Operating Room Discipline & Protocol - Inderdeep Singh Alia

4.Handbok Of OT Technicians -KilpadiArun

BLUE PRINT

UNIT	WEIGHTAGE %	MARKS ALLOTED (80 marks)	LONG ANSWER (10 marks)	SHORT ANSWER (6 marks)	VERY SHORT ANSWER (3 marks)
1	15	12	-	1 1*	2 1*
2	15	12	-	1	2 1*
3	27	22	1 1*	1	2
4	28	22	1 1*	1	2
5	15	12	-	1	2

The duration of Examination (University) is Three (3) hours.

The total marks for the University Examination will be 100 marks.

Long Answer Questions : 2 X 10 = 20 marks (Choice 2 out of4)

Short Answer Questions : 5 X 6 = 30 marks (Choice 5 out of6)

Very Short Answer Questions: 10X3=30 marks (Choice10out of 12)

TOTAL = Theory 80 + IA 20 = 100 marks

MODEL QUESTION PAPER

TIME: 3 HOURS **MAXIMUM MARKS:80**

Illustrate your answers with suitable diagrams wherever necessary.

A. Long Answer Questions **(2X10=20)**

1. a) Anaesthesia for Laproscopic Surgery.or
   b) Preparation of OT setup for Craniectomy.
2. a)Physiological changes in Normal Pregnancy.Or
   b) Differentiate between spinal and epidural anesthesia .

B. Short answer questions –Answer any 5 **(5X 6=30)**

1. Chronic otitismedia
2. Explain about the facial nerveparalysis
3. Explain about acute parotitis – clinical features, clinical manifestation, treatment?
4. Leukoplakia- causes, stages,treatment?
5. Explain about cleft lip surgery and dab?
6. Explain about the types of orthopedic surgery?

C. Very Short answer questions -Answerany10 **(10x3 =30)**

1. Otosclerosis
2. Oralcandidiasis
3. Causes of acute parotitis?
4. Hyperkeratosis?
5. Define sking rafting?
6. Define orthopedic surgery?
7. Mention the cause of lower limb ischemia?
8. Anticoagulants
9. Indications for Neurosurgery?
10. Meaning of robotic surgery?
11. Indication for robotic surgery?
12. Anterior thoracotomy

DISCIPLINE ELECTIVE – III YEAR

SBV DEEMED TO BE UNIVERSITY – FACULTY OF ALLIED HEALTH SCIENCES
B.SC OPERATION THEATRE TECHNOLOGY
DISCIPLINE ELECTIVE-LABOUR ANALGESIA SYLLABUS

NAME OF THE SUBJECT PAPER	**: LABOUR ANALGESIA**
DURATION OF THEORY CLASSES	**: 64 HOURS**
DURATION OF TUTORIAL SESSION	**: NIL**
THEORY EXAMINATION	**: 50 MARKS (40 U+ 10 IA)**
DURATION OF THEORY EXAMINATION	**: 1 1/2 HOURS**
PRACTICAL EXAMINATION	**: NIL**

Learning outcomes

- To make students aware & assist the pain management techniques in clinical practice.
- To make students effective participation in handling drugs and tools in clinical practice .

Learning objectives

- Learn the relevant skills and practice labor analgesia techniques in clinical practice.
- Learn & practice the pharmacology of drugs used in labor analgesia.
- Learn about the pain physiology and its management techniques .

SYLLABUS

UNIT 1- Physiology of labor **10 HOURS**

- Introduction – history – anatomical considerations
- anatomy - spine ,pelvis, birth canal ,gravid uterus, blood and nerve supply to uterus .
- physiology of labor
- Anatomy and physiological changes during labor and after delivery
- fetal - neonatal - placental physiology

UNIT 2 - Labor pain **10 HOURS**

- Physiology of pain
- Pain pathways
- Innervations of the uterus and cervix during pregnancy and labor.
- Neuroendocrine aspects of labor pain
- labor pain evaluation
- cognitive and functional aspects of labor pain
- physiological factors affecting pain perception
- Maternal expectations ,information and satisfaction with labor analgesia
- ethical aspects of analgesia in childbirth

UNIT 3- Clinical pharmacology **20 HOURS**

- Pharmacology of General anesthetics and local anesthesia drugs.
- obstetric and post partum pharmacology
- endocrine pharmacology
- pharmacology considerations for newborn resuscitation
- pharmacology of placental drug transfer

UNIT 4-Labor analgesia **24 HOURS**

- Labor epidural- introduction -Indications , contraindications
- walking epidural -special considerations
- special consent -patient positioning
- equipments needed
- advantages and disadvantages
- Entonox - chemical structure - description
- pharmacology
- indications - contraindications
- Precautions with cylinders
- adverse effects
- dosage and administration & overdosage

REFERENCE BOOKS

1.Epidural labor analgesia - childbirth without pain - Giorgio capogna editor - springer

MODEL QUESTION PAPER

DURATION: 1 1/2HOURS **MAXIMUM: 40 MARKS**

Illustrate your answers with suitable diagram wherever necessary.

I.WRITE A SHORT NOTE ON ANY FIVE OF THE FOLLOWING. (5*6=30)

1. Components of epidural kit and its uses.
2. Describe patient positioning and its physiological changes.
3. Write about Accidental Dural Puncture during epidural anaesthesia and mention its adverse effects.
4. Entonox
5. Chemical sterilization
6. Composition
7. Advantage and Disadvantage

II.WRITE VERY SHORT NOTES ANY FIVE OF THE FOLLOWING. (5*2=10)

1. Define Labor Analgesia.
2. Mention the nerve supply of Uterus.
3. Composition of Entonox.
4. Parts of Entonox Cylinder.
5. What are the advantages of Labor Epidural?
6. Name the Systemic Opioids.
7. Maximum dose of Bupivacaine(0.5%) and Lignocaine with adrenaline(2%).
8. Advantages and disadvantage of Lignocaine with adrenaline.

SBV DEEMED TO BE UNIVERSITY – FACULTY OF ALLIED HEALTH SCIENCES
B.SC OPERATION THEATRE TECHNOLOGY
DISCIPLINE ELECTIVE-TRAUMA EVALUATION & MANAGEMENT SYLLABUS

NAME OF THE SUBJECT PAPER	**: TRAUMA EVALUATION & MANAGEMENT**
DURATION OF THEORY CLASSES	**: 64 HOURS**
DURATION OF TUTORIAL SESSION	**: NIL**
THEORY EXAMINATION	**: 50 MARKS (40 U+ 10 IA)**
DURATION OF THEORY EXAMINATION	**: 1 1/2 HOURS**
PRACTICAL EXAMINATION	**: NIL**

Learning outcomes

- To make students assist in all emergency resuscitation procedures .
- To make students effective participation in handling equipments in clinical practice.

Learning objectives

- Learn the relevant skills and practice the resuscitation techniques clinically.
- Learn & practice the pharmacology of drugs used in emergency medicine .
- Learn & practice equipments and monitoring in clinical practice.

SYLLABUS

UNIT 1- INTRODUCTION (6 HRS)

- Concept,priorities,principles and Scope of emergency care .
- Organization of emergency services : physical setup, staffing, Equipment and supplies, protocols.
- Concepts of triage and role of triage person.
- Coordination and involvement of different departments and facilities. Principles of emergency management.

UNIT 2 -BASIC PRINCIPLES OF TRAUMA CARE (ATLS) – 8 HRS

- The principles of kinetic energy Mechanism–Basic mechanic of soft Injury Pattern.
- Primary survey
- Secondary survey as appropriate Re-assessment
- Identification of Life threatening injuries , Shock –different types & Categories Revised trauma score, Glasgow Coma Score , Lifting & transporting of injured persons Splints and Immobilization,

UNIT 3 - LIFE SUPPORT & RESUSCITATION (14 HRS)

- Basic life support in perspective.
- Cardiopulmonary function and actions for survival .
- Adult Basic life support, Advanced Cardiac life support , Pediatric Basic Life support.
- Special resuscitation situations (drowning, hanging, Pregnancy)
- Safety during CPR training and actual rescue.
- Pharmacology of emergency drugs

UNIT 4 -INSTRUMENTATION IN EMERGENCY SERVICES 16 HRS

- Introduction to Biomedical engineering (Man – machine relationship)
- Intubating aids
- Invasive and non invasive monitoring
- Emergency resuscitation equipment
- Radiology equipment & radiation hazards
- Suction machine& nebulizer.
- Ambulance and its power supply
- Infant warmer & incubator

UNIT 5 -CLINICAL PROCEDURES IN EMERGENCY ROOM 20 HRS

A) ASSESSMENT

- Vital Sign Measurement:
- Pulse assessment
- Respiratory assessment
- Temperature assessment
- Blood pressure assessment

B) RESPIRATORY PROCEDURES:

- Endotracheal intubation and extubation
- Drugs through ET tube
- Tracheostomy insertion and management
- Suctioning an artificial airway:
- Naso tracheal suctioning
- Insertion of nasopharyngeal and oropharyngeal airway
- Mechanical ventilation
- Intercostal drainage
- pneumothroax and management
- rib fracture -diagnosis , treatment and management .

C) NONINVASIVE ASSESSMENT AND SUPPORT OF OXYGENATION AND VENTILATION

Reference books

1. Paramedic practice today above and beyond -Barbara - Mosby Elsevier
2.Clinical procedures in emergency medicine by Robert & Hedges -Saunders.
3.First Aid - St.John's Ambulance Associate

MODEL QUESTION PAPER

DURATION: 1 1/2HOURS **MAXIMUM: 40 MARKS**

Illustrate your answers with suitable diagram wherever necessary.

II.WRITE SHORT NOTE ON ANY FIVE OF THE FOLLOWING. (5*6=30)

1. Glasgow coma score.
2. Explain in detail about types of shock.
3. Equipments used in difficult intubation
4. Types of trauma.
5. Post traumatic stress disorder.
6. Difficult Airway algorithm.

III.WRITE VERY SHORT NOTE ANY FIVE OF THE FOLLOWING. (5*2=10)

1. Trauma management principle .
2. Mention the Treatable life threatening conditions.
3. Definitive airway.
4. Indications for advanced airway.
5. Circulation Assessment.
6. Phases of Trauma care management.
7. Trauma score.
8. Lifting and Transporting persons splints and immobilization.
9. What is primary trauma?
10. Causes of Trauma.

SBV DEEMED TO BE UNIVERSITY – FACULTY OF ALLIED HEALTH SCIENCES
B.SC OPERATION THEATRE TECHNOLOGY
DISCIPLINE ELECTIVE- INTERVENTIONAL CARDIOLOGY

NAME OF THE SUBJECT PAPER	**: INTERVENTIONAL CARDIOLOGY**
DURATION OF THEORY CLASSES	**: 64 HOURS**
DURATION OF TUTORIAL SESSION	**: NIL**
THEORY EXAMINATION	**: 50 MARKS (40 U+ 10 IA)**
DURATION OF THEORY EXAMINATION	**: 1 1/2 HOURS**
PRACTICAL EXAMINATION	**: NIL**

Learning outcomes

- To make students assist in all cardiac emergency resuscitation procedures .
- To make students effective participation in handling equipments in clinical practice.

Learning objectives

- Learn the relevant skills and practice the resuscitation techniques in clinical practice.
- Learn & practice basic and advanced cardiac catheterization procedures.
- Learn & practice equipments and monitoring in clinical practice.

SYLLABUS

UNIT 1- APPLIED ANATOMY & PHYSIOLOGY - MEDICINE RELAVANT TO CVS 16 HRS

- Relevant anatomy and physiology of cardiovascular system, blood vessels.
- Assessment , history - etiology , pathophysiology , clinical manifestations, diagnosis ,treatment modalities of vascular system (hypertension ,hypotension , arteriosclerosis ,Reynaud's disease , aneurysm) , coronary artery diseases, ischemic heart diseases, valvular heart diseases , rheumatic heart diseases ,cardiac myopathies, congestive cardiac failure)

UNIT 2- ECHOCARDIOGRAPHY 24 HRS

- Echocardiography in valvular heart disease
- Echocardiography in cardiomyopathies
- Echocardiography detection of congenital heart disease
- Transesophageal Echocardiography
- Transthoracic Echocardiography
- Stress echo cardiography and contrast echo cardiography

UNIT 3- CARDIAC CATHETERIZATION -BASICS 4 HRS

- Types of catheter
- Catheter cleaning and packing
- table movement
- image intensifier movement
- pressure recording system
- Cath Lab preparations, Monitoring, Anesthesia Requirements and Safety precautions

UNIT 4- CARDIAC CATHETERIZATION -ADVANCED **20 HRS**

- Contrast agents
- coronary angioplasty
- pediatric interventions
- balloon mitral valvuloplasty
- peripheral interventions
- intra aortic balloon pump
- thromboembolic disease & cardiac pacing
- cardiac electrophysiology
- complications and management
- shifting of cath lab patient to cardio thoracic theatre for managing complications
- cardiopulmonary bypass machine & ACT
- Thromboelastography

REFERENCE BOOKS

1.Echocardiography-Feigenbaum
2.Cardiac catheterization -Grossman

MODEL QUESTION PAPER

DURATION: 1 1/2 HOURS **MAXIMUM: 40 MARKS**

Illustrate your answers with suitable diagram wherever necessary.

I.WRITE SHORT NOTES ANY FIVE OF THE FOLLOWING. (5*6=30)

1. Causes of chest pain and how will you identify ischemic cardiac pain?
2. Hypertensive emergencies.
3. Classification of hypertensive drugs.
4. Complications after CABG surgery(Coronary artery bypass surgery)
5. Post operative atrial fibrillation.
6. Holter test.

II.WRITE VERY SHORT NOTES ON ANY FIVE OF THE FOLLOWING. (5*2=10)

1. Define Cardiac output.
2. Mention the causes for Congenital cyanotic heart disease.
3. Cardiac Myxomas.
4. Flutter waves.
5. How to prevent heart disease?
6. Uses of Adrenaline.
7. Pericardiectomy.
8. Methods of cardiopulmonary bypass.
9. Burger's disease.
10. Deep vein thrombosis.

SBV DEEMED TO BE UNIVERSITY – FACULTY OF ALLIED HEALTH SCIENCES
B.SC OPERATION THEATRE TECHNOLOGY
DISCIPLINE ELECTIVE- PULMONARY MEDICINE

NAME OF THE SUBJECT PAPER	**: PULMONARY MEDICINE DURATION OF**
THEORY CLASSES	**: 64 HOURS**
DURATION OF TUTORIAL SESSION	**: NIL**
THEORY EXAMINATION	**: 50 MARKS (40 U+ 10 IA)**
DURATION OF THEORY EXAMINATION	**: 1 1/2 HOURS**
PRACTICAL EXAMINATION	**: NIL**

Learning outcomes

- To make students assist in all respiratory emergency resuscitation procedures .
- To make students effective participation in handling equipments in clinical practice.

Learning objectives

- Learn the relevant skills and practice the resuscitation techniques in clinical practice.
- Learn & practice basic and advanced respiratory therapy.
- Learn & practice equipments and monitoring in clinical practice.
- Learn the basic principles of interventional pulmonology

SYLLABUS

UNIT 1- APPLIED ANATOMY & PHYSIOLOGY - MEDICINE RELAVANT TO RS 16 HRS

Relevant anatomy and physiology of Respiratory system.

- Assessment , history - etiology , pathophysiology , clinical manifestations, diagnosis ,treatment of chronic obstructive pulmonary diseases, chronic bronchitis ,ARDS ,Interstitial lung diseases ,ventilator associated pneumonia ,asthma ,emphysema,bronchiectasis ,pulmonary fibrosis, acute chest trauma, ventilation and perfusion abnormalities .

UNIT 2-DIAGNOSTIC TECHNIQUES IN CARDIO RESPIRATORY DISEASES 20 HRS

- Arterial Blood Gas Interpretation
- Pulse Oximetry
- Systematic Interpretation Of Chest X Ray
- Pulmonary Function Test - Spirometry
- Ventilator Graphy

UNIT 3- RESPIRATORY CARE -EQUIPMENTS & DRUGS 12 HRS

- medical gas supplies
- oxygen flow meters
- humidifiers
- pulse oximeter
- spirometer
- NIV
- intubating aids
- nebulizers
- ICD

- drugs used to treat respiratory diseases.

UNIT 4- RESPIRATORY THERAPY TECHNIQUES 16 HRS

- Oxygen therapy
- aerosal therpy
- suctioning method
- ICD insertion ,complications
- ET intubation techniques
- bronchoscopy
- chest physiotherapy - postural drainage

Reference books

1.George mathew .k.medicine prep manual 1st edition .B.I churchill livingstone
2.scot irwin,Jan stephen tecklin ,cardiopulmonary physical therapy a guide to practice.

MODEL QUESTION PAPER

DURATION: 1 1/2 HOURS MAXIMUM: 40 MARKS

Illustrate your answers with suitable diagram wherever necessary.

I.WRITE SHORT NOTES ANY FIVE OF THE FOLLOWING. (5*6=30)

1. Write about Positive End Expiratory Pressure (PEEP).
2. What is cyanosis? list four causes for it.
3. Respiratory alkalosis and acidosis.
4. Nerve supply of Diaphragm.
5. Anti-tuberculous drug.
6. Explain about respiratory monitoring .

II.WRITE VERY SHORT NOTE ANY FIVE OF THE FOLLOWING. (5*2=10)

1. Classify lung cancer.
2. Write briefly about salbutamol.
3. Diagnosis of acute lung injury.
4. What is asbestosis?
5. Write the steps in thoracentesis.
6. What are the triggers of bronchial asthma?
7. Draw adult AMBU bag .
8. Writre three causes of pleural effusion.

QUESTION BANK

B.Sc. AHS I YEAR

PAPER-1: ANATOMY

UNIT: 1 GENERAL ANATOMY

HUMAN CELL

Q. NO	TOPICS	TYPE
1.	Discuss the Cell & its Organelles.	SAQ

EPITHELIUM

Q.NO	TOPICS	TYPE
1.	Classification of Epithelium with its examples.	SAQ
2.	Draw the neat label diagram of Simple epithelium with its examples.	SAQ
3.	Draw the neat label diagram of Compound epithelium with its examples.	SAQ
4.	Write a note on Goblet cell.	VSAQ
5.	Write a note on Basement membrane of epithelium.	VSAQ

GLANDS

Q.NO	TOPICS	TYPE
1.	Classification of Glands with its examples.	SAQ
2.	Discuss the Microscopic structure of Mucous / Serous / Mixed salivary gland with its examples.	SAQ

CARTILAGE

Q.NO	TOPICS	TYPE
1.	Discuss the Microscopic structure of Hyaline cartilage / Elastic cartilage / White fibro cartilage with its examples.	SAQ
2.	Classification of Cartilage with its examples.	VSAQ
3.	Write a note on Perichondrium.	VSAQ

BONE

Q.NO	TOPICS	TYPE
1.	Classification of Bones with its examples.	SAQ
2.	Draw & Discuss the Microscopic structure of Compact bone (T.S)	SAQ
3.	Discuss the blood supply of long bone.	SAQ
4.	List out the bones in region wise.	SAQ
5.	State the parts of growing long bone.	VSAQ
6.	State the parts of adult long bone.	VSAQ
7.	Write a note on Periosteum.	VSAQ
8.	Write a note on carpal bones.	VSAQ
9.	Write a note on Sesamoid bone.	VSAQ
10.	Write a note on Fontanellae of fetal skull.	VSAQ
11.	Write a note on Haversion system of compact bone.	VSAQ
12.	List out the structural differences between the Bone & Cartilage.	VSAQ

JOINTS

Q.NO	TOPICS	TYPE
1.	Classification of Joints with its examples.	SAQ
2.	Classification of Synovial joint with its examples.	SAQ
3.	Discuss the structure of synovial joint.	SAQ
4.	Classification of Cartilagenous joint with its examples.	SAQ

MUSCULAR TISSUE

Q.NO	TOPICS	TYPE
1.	Draw & Discuss the Microscopic structure of Skeletal muscle / Cardiac muscle / Smooth muscle with its examples.	SAQ
2.	Classification of muscular tissue with its examples.	VSAQ
3.	State the muscles of mastication & its nerve supply.	VSAQ
4.	List out the microscopic structural differences between the types of muscles.	VSAQ

SKIN

Q.NO	TOPICS	TYPE
1.	Draw & Discuss the Microscopic structure of Thick / Thin skin.	SAQ
2.	Classification / Types of skin with its example.	VSAQ
3.	List out the structural differences between the types of skin.	VSAQ

UNIT: 2 CARDIOVASCULAR SYSTEMS

MEDIASTINUM

Q.NO	TOPICS	TYPE
1.	Definition, location & general boundary / outline boundary of Mediastinum.	SAQ
2.	Discuss the boundaries & contents of Superior mediastinum.	SAQ
3.	Discuss the boundaries & contents of Inferior mediastinum.	SAQ

HEART

Q.NO	TOPICS	TYPE
1.	Explain the gross features of Right atrium under following headings – a) Definition, b) location, c) external features, d) internal features, e) Function, f) arterial supply.	LAQ
2.	Describe the Blood supply of Heart.	LAQ
3.	Discuss the location & External features of Heart.	SAQ
4.	Discuss the Valves of Heart. (A.V -valve & Semilunar valve)	SAQ
5.	Discuss the Systemic & Pulmonary circulation of Heart.	SAQ
6.	Discuss the Right coronary artery / Left coronary artery under following headings – a) Origin, b) course, c) branches.	SAQ
7.	Write a note on Apex of Heart.	VSAQ
8.	List out the chambers & great blood vessels of Heart.	VSAQ
9.	Trace the conducting system of Heart.	VSAQ
10.	State the definition, layers, sinuses & nerve supply of Pericardium.	VSAQ

BLOOD VESSELS

Q.NO	TOPICS	TYPE
1.	Describe the Portal vein under following headings – a) Definition, b) formation, c) location, d) course, e) branches, f) Parts, g) Tributaries.	LAQ
2.	Explain the Cavernous sinus under following headings – a) Definition, b) location, c) measurement, d) extension, e) relations, f) Tributaries, g) communications.	LAQ

3.	Parts & branches of Aorta	SAQ
4.	Discuss the origin, course, parts & branches of Subclavian artery.	SAQ
5.	Discuss the origin, course, parts & branches of Axillary artery.	SAQ
6.	Discuss the origin, course & branches of Brachial artery.	SAQ
7.	Discuss the origin & branches of Internal iliac artery.	SAQ
8.	Discuss the origin, course & branches of External carotid artery.	SAQ
9.	Discuss the origin, parts, course & branches of Internal carotid artery.	SAQ
10.	Classification of Dural venous sinuses.	SAQ / VSAQ
11.	Enumerate the branches of Brachial artery.	VSAQ
12.	State the branches of Radial & Ulnar artery.	VSAQ
13.	State the branches of Femoral artery.	VSAQ
14.	List out the sites of Peripheral pulse.	VSAQ
15.	List out the sites of Porto caval anastomosis.	VSAQ
16.	State the formation, course & termination of Great saphenous vein / Short saphenous vein.	VSAQ
17.	Write a note on Cysterna chyli.	VSAQ
18.	Formation, location & branches of Superficial palmar arch / Deep palmar arch.	VSAQ

UNIT: 3 RESPIRATORY SYSTEM

Q.NO	TOPICS	TYPE
1.	Explain the **Larynx** under following headings – a) Definition, b) location, c) extension, d) measurement, e) Skeletal framework, f) function.	LAQ
2.	Explain the **Lung** under following headings – a) Definition, b) location, c) coverings, d) weight & Colour, e) external features, f) medial surface impression, g) hilum, h) Root of lung, i) blood supply, j) note on Bronchopulmonary segments.	LAQ
3.	Discuss the definition, formation & structures opening in the Lateral wall of nose.	SAQ
4.	Discuss the definition, extension, measurement, external feature of Trachea.	SAQ
5.	Discuss the definition, layers, parts of layers, recesses, nerve supply of Pleura.	SAQ / VSAQ
6.	State the parts of Respiratory system.	VSAQ
7.	Enumerate the structures forming the Nasal septum.	VSAQ
8.	Write a note on Carina.	VSAQ
9.	Write a note on Bronchopulmonary segments.	VSAQ
10.	List out the Para nasal air sinuses.	VSAQ
11.	Enumerate the muscles of Respiration & state its nerve supply.	VSAQ

UNIT: 4 DIGESTIVE SYSTEMS

Q.NO	TOPICS	TYPE
1.	Describe the **Tongue** under following headings – a) Definition, b) location, c) parts, d) external features, e) muscles, f) Nerve supply.	LAQ
2.	Explain the **Pharynx** under following headings – a) Definition, b) location, c) extension, d) sub-division, e) Muscles forming the pharynx, f) nerve supply.	LAQ

3.	Explain the **Stomach** under following headings – a) Definition, b) location, c) capacity, d) measurement, e) External features, f) Parts, g) relations, h) blood supply.	LAQ
4.	Describe the **Duodenum** under following headings – a) Definition, b) location, c) parts, d) measurement, e) external features, f) Internal features (2^{nd} part), g) blood supply.	LAQ
5.	Explain the **Liver** under following headings – a) Definition, b) location, c) Colour, d) weight, e) external features, f) Relations, g) bare area, h) Porta hepatis, i) blood supply, j) function.	LAQ
6.	Explain the **Pancreas** under following headings – a) Definition, b) location, c) anatomical & functional parts, d) measurement, e) Colour, f) external features, g) relations, h) Duct of pancreas, i) Blood supply.	LAQ
7.	Discuss the location & external features of Tongue.	SAQ
8.	Discuss the parts, muscles of Tongue & state its nerve supply.	SAQ
9.	Discuss the location, external features, parts & blood supply of stomach.	SAQ
10.	Discuss the external & internal features of the 2^{nd} part of Duodenum.	SAQ
11.	Discuss the Caecum under following headings – a) Definition, b) location, c) measurement, d) types, e) external features, f) Internal features, g) blood supply.	SAQ
12.	Discuss the Appendix under following headings – a) Definition, b) location, c) parts, d) measurement, e) position, f) Blood supply.	SAQ
13.	Discuss the characteristic features / cardinal features of Large intestine.	SAQ
14.	Discuss the Extra hepatic biliary apparatus under following headings – a) Definition, b) parts, c) measurement, d) function, e) Note on gall bladder.	SAQ
15.	Discuss the definition, location, origin, course & branches of Coeliac trunk.	SAQ
16.	List out the parts of Digestive system.	VSAQ
17.	State the parts & papillae of Tongue.	VSAQ
18.	State the nerve supply of Tongue.	VSAQ
19.	Enumerate the muscles of Tongue.	VSAQ
20.	State the extension & sub-divisions of Pharynx.	VSAQ
21.	State the extension & constrictions of Esophagus.	VSAQ
22.	List out the structural differences between the Jejunum & Ileum.	VSAQ
23.	State the location & types of Caecum.	VSAQ
24.	State the location / parts & position of Appendix.	VSAQ
25.	Write a note on Porta hepatis.	VSAQ
26.	Write a note on bare area of Liver.	VSAQ
27.	Write a note on Pancreatic duct.	VSAQ
28.	Enumerate the parts & function of Biliary apparatus.	VSAQ
29.	Classification of Salivary glands.	VSAQ
30.	State the branches of Superior mesenteric artery.	VSAQ
31.	State the branches of Inferior mesenteric artery.	VSAQ
32.	State formation of Marginal artery / artery of Drummond.	VSAQ

UNIT: 5 URINARY SYSTEM

Q.NO	TOPICS	TYPE
1.	Explain the Kidney under following headings – a) Definition, b) location, c) measurement, d) Colour, e) external features, f) Hilum, g) relations, h) coverings, i) internal features, j) Blood supply.	LAQ
2.	Explain the Urinary bladder under following headings – a) Definition, b) location, c) shape, d) measurement, e) capacity, f) External features, g) relations, h) supports, i) Internal features (Trigone of urinary bladder), j) blood supply, k) role.	LAQ
3.	Discuss the location & relations of Kidney.	SAQ
4.	Discuss the extension, parts, measurement, constrictions & blood supply of Ureter.	SAQ
5.	Discuss the external features & supports of Urinary bladder.	SAQ
6.	State the parts of Urinary system.	VSAQ
7.	Write a note on hilum of kidney.	VSAQ
8.	State the extension, parts & constrictions of ureter.	VSAQ
9.	Write a note on Trigone of urinary bladder.	VSAQ
10.	State the definition, extension & parts of Male urethra.	VSAQ
11.	Write a note on Female urethra.	VSAQ

UNIT: 6 REPRODUCTIVE SYSTEMS
MALE REPRODUCTIVE SYSTEM

Q.NO	TOPICS	TYPE
1.	Explain the **Testis** under following headings – a) Definition, b) location, c) measurement, d) shape, e) external features, f) Coverings, g) internal features, h) functions, i) blood supply.	LAQ
2.	Describe the **Prostate gland** under following headings – a) Definition, b) location, c) shape, d) measurement, e) shape, f) External features, g) lobes, h) coverings, i) blood supply.	LAQ
3.	Discuss the location, external features, layers & blood supply of Scrotum.	SAQ
4.	Discuss the External & internal features of Testis.	SAQ
5.	Discuss the External features, lobes & coverings of Prostate.	SAQ
6.	State the parts of Male Reproductive system.	VSAQ.
7.	Enumerate the layers of Scrotum & state its nerve supply.	VSAQ.
8.	State the parts & role of Epididymis.	VSAQ.
9.	State the coverings of Testis & Prostate.	VSAQ.
10.	State the coverings & contents of Spermaticcord.	VSAQ.

FEMALE REPRODUCTIVE SYSTEM

Q.NO	TOPICS	TYPE
1.	Explain the **Mammary gland** under following headings – a) Definition, b) location, c) extension, d) shape, e) structures / features, f) Blood supply.	LAQ
2.	Explain the **Uterus** under following headings – a) Definition, b) location, c) shape, d) measurement, e) external features, f) Positions, g) relations, h) supports, i) blood supply.	LAQ
3.	Discuss the Gross structure of Mammary gland.	SAQ

4.	Discuss the location & external features of Uterus.	SAQ
5.	Discuss the location, position & supports of Uterus.	SAQ
6.	Discuss the external & internal features of Ovary.	SAQ
7.	State the parts of Female Reproductive system.	VSAQ
8.	State the parts & role of Fallopian tube.	VSAQ
9.	Enumerate the ovarian follicles.	VSAQ
10.	State the parts & positions of Uterus.	VSAQ

UNIT: 7 ENDO CRINE SYSTEM

Q.NO	TOPICS	TYPE
1.	Describe the **Thyroid gland** under following headings – a) Definition, b) location, c) hormones, d) peculiarities, e) external features, f) Parts, g) relations, h) coverings, i) blood supply, j) Functions.	LAQ
2.	Explain the **Pituitary gland** under following headings – a) Definition, b) location, c) shape, d) measurement, e) external features & hormones, f) Blood supply.	LAQ
3.	Explain the **Suprarenal gland** under following headings – a) Definition, b) location, c) measurement, d) external features, e) Internal features, f) hormones, g) blood supply.	LAQ
4.	Discuss the external features of Thyroid gland, state its coverings & blood supply.	SAQ
5.	Discuss the external features & hormones of Pituitary gland.	SAQ
6.	Discuss the external & internal features of Suprarenal gland & state its hormones.	SAQ
7.	List out the Endocrine glands.	VSAQ
8	Classification of Endocrine glands.	VSAQ
9.	State the location & blood supply of Thyroid gland.	VSAQ
10.	State the location & hormones of Pituitary gland.	VSAQ
11.	State the location & hormones of Parathyroid gland.	VSAQ

UNIT: 8 NERVOUS SYSTEM

Q.NO	TOPICS	TYPE
1.	Classification of Nervous system.	SAQ
2.	Discuss the Cerebrum under following headings – a) Definition, b) location, c) external features.	SAQ
3.	Discuss the external features & blood supply of Cerebrum.	SAQ
4.	Discuss the Supero-lateral surface of Cerebrum.	SAQ
5.	Discuss the Cerebellum under following headings – a) Definition, b) location, c) nucleus, d) functions, e) blood supply.	SAQ
6.	Discuss the Spinal cord under following headings – a) Definition, b) location, c) extension, d) measurement, e) coverings, f) Blood supply.	SAQ
7.	Discuss the extension & external features of Spinal cord.	SAQ
8.	Discuss the location & external features of Midbrain.	SAQ
9.	Discuss the location & external features of Pons.	SAQ
10.	Discuss the location & external features of Medulla oblongata.	SAQ
11.	Discuss the blood supply of Brain.	SAQ
12.	Discuss the formation of Circle of Willis.	SAQ
13.	Classification of Cranial nerves.	SAQ / VSAQ
14.	State the parts of Brain.	VSAQ

15.	Write a note on Sulci & Gyri.	VSAQ
16.	State the location & nucleus of Cerebellum.	VSAQ
17.	State the layers of Meninges & its space.	VSAQ
19.	State the layers of meninges & its modification.	VSAQ
18.	State the modification of Spinal meninges.	VSAQ
20.	Enumerate the cranial nerves emerges from Midbrain / Pons / Medulla oblongata.	VSAQ
21.	List out the Cranial nerves.	VSAQ
22.	List out the Basal nuclei	VSAQ
23.	State the location & parts of Corpus callosum.	VSAQ

UNIT: 9 GENERAL EMBRYOLOGY

Q.NO	TOPICS	TYPE
1.	Discuss the stages of Spermatogenesis.	SAQ
2.	Discuss the stages of Oogenesis.	SAQ
3.	Discuss the Placenta under following headings – a) Definition, b) external features, c) functions.	SAQ
4.	Write a note on Fertilization & state its phases.	VSAQ
5.	Write a note on Implantation.	VSAQ
6.	Write a note on Ovulation.	VSAQ

PAPER 2 - PHYSIOLOGY

UNIT – I

GENERAL PHYSIOLOGY

Very short answer questions (VSAQ)

1. Draw labeled diagram of human cell and mention any four functions of cell organelles.
2. Explain one function of
   a) Mitochondria, b). Golgi apparatus
   c) Endoplasmic reticulum d) Ribosome
3. Give two differences between mitosis and meiosis.
4. Name the phases of mitosis
5. Name different types of intercellular connections?
6. Classify various mechanisms of transport across cell membrane.
7. Describe different mechanism of passive transport across the cell membrane
8. Describe different mechanism of active transport across the cell membrane
9. Define osmosis. Give examples.
10. Define symport. Give one example.
11. Define antiport. Give one example.
12. Define homeostasis. Name the types of feedback mechanisms involved in homeostasis with one example.
13. Briefly explain negative feedback mechanisms with examples.
14. Briefly explain positive feedback mechanisms with examples.
15. Give normal values of i) Intracellular fluid (ICF), ii) Extracellular fluid (ECF), iii) plasma and iv) Interstitial fluid

HEMATOLOGY (BLOOD)

Long answer questions (LAQ)

1. What is erythropoiesis? Describe the stages and factors influencing it.
2. What is anemia? Describe the types of anemia. Give the blood picture in each of them.
3. What s immunity? Explain its types.
4. Explain the mechanism of hemostasis.
5. Explain intrinsic and extrinsic mechanisms of blood clotting.
6. Name the blood group systems. Explain the basis for its classification. Add a note on its clinical importance.

Short answer questions (SAQ)

1. Briefly describe the composition of blood.
2. Write the functions of blood.
3. List the plasma proteins. Write its functions.
4. What is Erythropoiesis? List its stages.
5. Define anemia with types. Explain iron deficiency anemia.
6. Briefly explain ABO and Rh system.
7. Erythroblastosis fetalis.
8. Define hemostasis with stages.
9. Name the clotting factors.
10. Define immunity. What are its types?

Very short answer questions (VSAQ)

1. Classifications of WBC.
2. Functions of neutrophil.
3. What is Phagocytosis?
4. Functions of eosinophil.
5. Functions of basophil.
6. Functions of lymphocytes.
7. Functions of red blood cell (RBC).
8. Write the normal values of hemoglobin in adults male and female.
9. Functions of hemoglobin.
10. Functions of platelets.
11. What is hemophilia?
12. What is anticoagulant?
13. Name any two anticoagulants.
14. Name the blood group systems.
15. Define Landsteiner's law.

Mismatch transfusion.

UNIT – II

CARDIOVASCULAR SYSTEM

Long answer questions (LAQ)

1. Define cardiac cycle. Explain with the help of a diagram the mechanical and pressure changes during cardiac cycle.
2. Draw a labelled diagram showing the innervations of heart. Describe the regulation of heart rate.
3. Define blood pressure. Give its normal values. Write the factors controlling blood pressure.
4. Define cardiac output and cardiac index. Give its normal values. Describe the factors regulating cardiac output.
5. What is shock? What are its types? Discuss the cardiovascular compensatory changes that occur during shock.

Short Answer Questions (SAQ)

1. Write the difference between pulmonary and systemic circulation.
2. Briefly describe the conducting system of heart.
3. Draw labeled diagram of conducting system of heart.
4. List out the properties of cardiac muscle. Briefly explain any two properties.
5. Draw a normal Lead II ECG indicating its waves and segments.
6. Define blood pressure (BP). What are the components of it and write its normal range.
7. List the factors affecting blood pressure
8. Define cardiac cycle. List the events during cardiac cycle.
9. Define shock. Name its types.
10. Briefly explain the types of heart sounds.

Very Short Answer Questions (VSAQ)

1. Write any two differentiating points between pulmonary and systemic circulation.
2. Define blood pressure.
3. What is systolic blood pressure? Write its normal value.
4. What is diastolic blood pressure? Write ifs normal value.
5. Define pulse. Write its normal range.
6. Write any two difference between tachycardia and bradycardia
7. Define cardiac output. Write its normal values.
8. Define stroke volume. Write its normal values.
9. What is electrocardiogram (ECG)?
10. List any four properties of cardiac muscle

UNIT III

RESPIRATORY SYSTEM

Long answer questions (LAQ)

1. Describe the mechanics of breathing.
2. Explain oxygen transport in the blood. Describe the oxygen dissociation curve.
3. Discuss the transport of carbon dioxide in the blood.
4. Name the respiratory centers. Explain the neural regulation of respiration.
5. Classify hypoxia. Describe the types with suitable examples.

Short answer questions (SAQ)

1. Briefly explain the mechanism of inspiration.
2. Briefly explain the mechanism of expiration.
3. Draw labeled diagram of pontine and medullary respiratory centers.
4. Briefly explain the transport of oxygen in the blood
5. Briefly explain the transport of carbon dioxide in the blood.
6. Draw labeled diagram of normal spirogram indicating lung volume and capacities.
7. Define and give normal values of lung volumes.
8. Define and give normal values of lung capacities.
9. What is surfactant? Give its function.
10. Define hypoxia. List its various types.
11. Classify and explain any one type of hypoxia.

Very short answer questions (VSAQ)

1. Name the inspiratory muscles.
2. Name the expiratory muscles.
3. Name the respiratory and non-respiratory functions of lungs.
4. Write any four functions of respiratory system.
5. Function of surfactant.
6. Name the respiratory centers.
7. Normal values of lung volumes.
8. Normal values of lung capacities.
9. Draw labeled diagram of respiratory center.
10. List the types of hypoxia
11. Vital Capacity.
12. What is dead space?

13. What is hypoxia?
14. What is dyspnea?
15. What is cyanosis?
16. What is periodic breathing?

UNIT – IV
IV – GASTRO-INTESTINAL PHYSIOLOGY

Long Answer Questions (LAQ)

1. Describe the phase and control of deglutition. Add a note on its applied importance.
2. Write the composition of saliva? Describe the regulation of salivary secretion. Discuss its functions.
3. Describe the composition and phases of gastric secretion. Briefly explain the HCl secretion in stomach.
4. Describe the phases of pancreatic secretion.

Short Answer Questions (SAQ)

1. Give the composition and functions of saliva?
2. Give composition and functions of gastric secretion?
3. Briefly explain mechanism of HCl secretion
4. Give composition and functions of pancreatic secretion?
5. Briefly explain entero-hepatic circulation with neat diagram.
6. Briefly explain the functions of liver.
7. Classify gastro intestinal (GI) hormones and write its actions of any two hormones.
8. Peptic ulcer.

Very Short Answer Questions (VSAQ)

1. What is mastication?
2. What is deglutition?
3. Write any four functions of saliva.
4. Write any four functions of liver.
5. Functions of pancreatic juice.
6. Name any four GI hormones.
7. Functions of gastrin.
8. Functions of secretin.
9. Functions of cholecystokinin pancreozymin.
10. What are the movements of stomach?
11. What are the movements of small intestine?
12. What are the movements of large intestine?
13. Write any four functions of bile.
14. What is the difference between liver and gall bladder bile?

UNIT – IV
RENAL PHYSIOLOGY (EXCRETORY SYSTEM)

Long Answer Questions (LAQ)

1. Describe the mechanism of urine formation.
2. Define GFR (Glomerular filtration rate). Write its normal values. Briefly explain the factors affecting GFR.
3. Describe the Structure and functions of juxta glomerular apparatus

4. Draw a labeled diagram showing nerve supply to the urinary bladder. Explain the mechanism of micturition. What is a neurogenic bladder?
5. Describe the role of counter current multiplier and exchange system in concentrating urine.
6. Discuss the role of different buffer systems in regulation of acid – base balance.

Short Answer Questions (SAQ)

1. Briefly explain the functions of kidney.
2. Briefly explain the formation of urine.
3. Briefly explain mechanism behind voiding of urine.
4. Define GFR (Glomerular filtration rate). Write its normal values. List the factors affecting GFR.
5. What is the normal renal blood flow? How is it measured?
6. List the Special features of renal blood flow.
7. List any three differences between Cortical and Juxtamedullary nephrons.
8. Draw a labeled diagram of juxtaglomerular apparatus. What are its functions?
9. With a flow chart and suitable diagram, indicate the process of micturition reflex.
10. Briefly explain the role of ADH (Anti-diuretic hormone) on kidney?
11. Briefly explain renal dialysis.

Very Short Answer Questions (VSAQ)

1. Draw labeled diagram of a nephron.
2. Draw labeled diagram of filtration membrane
3. Write any four functions of kidney.
4. Functions of macula densa and Juxtaglomerular cells
5. What are the steps of urine formation?
6. Give one substances used to measure GFR and renal plasma flow.
7. What is micturition reflex?
8. What is cystometrogram?
9. Filtration fraction.
10. Define renal clearance.
11. Name the types of renal clearance.
12. List any three differences between cortical and medullary nephrons.
13. What is diuresis?
14. What is diuretics?
15. Name any two diuretics.
16. Give two functions of skin?

UNIT – V

V - ENDOCRINE PHYSIOLOGY

Short Answer Questions (SAQ)

1. List the anterior pituitary (Adenohypophysis) hormones. Give any two hormone functions.
2. Mention the physiological role of GH (Growth hormone). Add a note on its hyper and hypo secretion.
3. Name the posterior pituitary hormones. Give their functions.
4. Name the adrenal cortical and medullary hormones. Mention the functions of glucocorticoids.
5. Mention the functions of aldosterone.

6. Name the thyroid hormones. Write its functions.
7. Name the hormones synthesized by pancrease. Mention their role in maintaining blood glucose.
8. Explain the actions of hormones on hyperglycemia and hypoglycemia.

Very Short Answer Questions (VSAQ)

1. Name any four hypothalamic hormones.
2. Name the anterior pituitary (Adenohypophysis) hormones.
3. List the posterior pituitary (Neurohypophysis) hormones
4. What is diabetes mellitus? What are its types?
5. What is the difference between gigantism and agromegaly?
6. What is dwarfism?
7. Name the thyroid hormones.
8. Write any two functions of thyroid hormones.
9. What is Grave's disease?
10. What is myxedema?
11. What is cretinism?
12. What is the difference between myxedema and cretinism?
13. Functions of parathormone.
14. Functions of mineralocorticoids (Aldosterone).
15. Functions of glucocorticoids.
16. What is Cushing's syndrome?
17. What is Addison's disease?
18. What is the difference between diabetes mellitus and diabetes insipidus?
19. Name the hormones secreted by pancrease.
20. Name the diabetogenic and antidiabetogenic hormones.
21. Functions of insulin.
22. Functions of glucagon.
23. What is diuresis? What are its types?
24. Functions of adrenal medullary hormone.
25. What is fight or flight response?

V- REPRODUCTIVE SYSTEM

Short answer questions (SAQ)

1. What is spermatogenesis? Mention its stages.
2. Briefly explain the ovarian cycle.
3. Briefly explain ovulation with hormonal regulations.
4. What is menstrual cycle? Briefly explain its phases.
5. Briefly explain any two female contraceptive methods.
6. List the contraceptive methods in male and female.
7. Explain the IUCD (Intrauterine contraceptive device).
8. List the functions of estrogen.
9. List the functions of progesterone.

Very short answer questions (VSAQ)

1. Write any two functions of testosterone.
2. What is menarche and menopause?
3. What is menstrual cycle?
4. List the placental hormones.
5. List the functions of Follicular stimulating hormone (FSH).
6. List the functions of sertoli cells

7. Functions of placenta.
8. Name the factors influencing spermatogenesis.
9. What is fertilization?

UNIT – VI
NERVE MUSCLE PHYSIOLOGY

Short answer questions (SAQ)

1. Draw the labeled diagram of neuromuscular junction (NMJ).
2. Briefly explain the ionic basis of action potential in a neuron.
3. Briefly explain the steps of neuromuscular transmission of signal impulse.
4. With the help of a flow chart, depict the steps of muscle contraction.
5. Briefly explain the excitation – contraction coupling in a skeletal muscle
6. Write any four differences between skeletal, cardiac and smooth muscles.
7. Myasthenia gravis

Very short answer questions (VSAQ)

1. Describe the structure of a neuron.
2. Give the normal value of resting membrane potential of i) motor neuron and ii) skeletal muscle.
3. Give normal resting membrane potential of neuron and skeletal muscle.
4. List any two properties of nerve fibers.
5. Name any two neuromuscular blocking agent
6. Draw the structure of sarcomere
7. Name the muscle proteins.
8. List any four properties of skeletal muscle.
9. Rigor mortis

VI – CENTRAL NERVOUS SYSTEM (CNS)
Short answer questions (SAQ)

1. Briefly explain the divisions of nervous system.
2. With a flow chart and suitable diagram briefly explain the synaptic transmission of excitatory postsynaptic potential (EPSP).
3. With a flow chart and suitable diagram briefly explain the synaptic transmission of inhibitory postsynaptic potential (IPSP).
4. Briefly explain the functions of cerebral cortex.
5. What are the functions of cerebellum?
6. What are the functions of basal ganglia?
7. What are the functions of hypothalamus?

Very short answer questions (VSAQ)

1. Name any four properties of synapse.
2. Write any two functions of thalamus.
3. Functions of medulla oblongata.
4. Functions of cerebro spinal fluid (CSF).
5. Name any two neurotransmitters.
6. Name any four hypothalamic hormones.
7. Name the anterior pituitary (Adenohypophysis) hormones.
8. List the posterior pituitary (Neurohypophysis) hormones

VI - SPECIAL SENSES
Short answer questions (SAQ)

1. Trace the visual pathway with a neat labeled diagram
2. Explain the errors of refraction
3. Trace the auditory pathway with a neat labeled diagram

4. Functions of Middle ear.
5. Trace the olfactory pathway.

Very short answer questions (VSAQ)

1. Name the receptors for vision, smell, taste and hearing.
2. Functions of eye
3. List the primary colors of vision
4. Accommodation reflex.
5. What are the functions of rods and cones in eye?
6. Explain the terms ageusia, hypogeusia, dysgeusia.
7. Name the primary taste sensations

PAPER-3: BIOCHEMISTRY

UNIT-I: INTRODUCTION TO BIOCHEMISTRY

Long answer questions **(10 marks)**

1. How is acid base balance maintained in the body?
2. Write in detail about Acid base disorders

Short Questions **(6 marks)**

1. Discuss the different buffer system of acid base homeostasis.
2. What is the normal PH of blood? How is it maintained?
3. Explain the role of lungs in acid base system
4. Glass electrode and determination of pH
5. Explain the Metabolic acidosis & Metabolic alkalosis
6. Explain the Respiratory acidosis & Respiratory alkalosis
7. Role of kidney in the regulation of blood pH
8. Biochemical assessment of acid base balance

Very Short answer questions: **(3 marks)**

1. Define pH. What is the normal values of blood & urine PH
2. Define buffer and give 2 examples.
3. Define acid/ base with example
4. Write any 2 conditions for acid base imbalance.
5. What is Henderson Hasselbalch equation
6. Define Anion gap with example
7. List out any 2 causes & symptoms for Respiratory acidosis & alkalosis
8. List out any 2 causes & symptoms for Metabolic acidosis & alkalosis
9. Define isoelectric PH.

PROTEINS

Long answer questions **(10 marks)**

1. Define proteins & detail in classification of Proteins with suitable examples
2. Describe the different levels of protein structure in detail with suitable diagram

Short Questions **(6 marks)**

1. What are Essential amino acids & mention its clinical significance
2. Mention any five biologically important peptides & its clinical role
3. Define Protein denaturation & causes, characteristics with example
4. Classify amino acids in detail with example.
5. Explain Transamination & Give one example.
6. Functions of plasma proteins
7. Define Electrophoresis & its clinical significance
8. Define Chromatography & its clinical significance
9. Explain the secondary structural organization of proteins
10. Mention the hydrolytic products of proteins
11. Precipitation reactions of protein
12. Define peptide bond formation & characteristics of peptide bond
14. Determination protein structure
15. Biological functions of amino acids16 Biological functions of proteins.

Very Short answer questions: **(3 marks)**

1. Name any 4 agents causing denaturation of protein
2. Name any 2 defense & buffer proteins
3. Name the Sulphur containing essential amino acid& functions.
4. Explain oxidative deamination with example
5. Explain decarboxylation with example
6. Mention the Properties of proteins
7. Name the conjugated protein with example
8. Name the derived protein with example
9. Define A:G ratio
10. Nutritional classes of proteins with example
11. Define zwitterion
12. Fibrous & globular proteins

ENZYMES

Long answer questions **(10 marks)**

1. Classify enzymes? Explain any 4 factors affecting the enzymes activity
2. Explain the different types of enzyme inhibition with suitable examples

Short Notes **(6 marks)**

1. How are enzymes classified and give one example for each class?
2. Explain factors affecting enzyme activity
3. Mention the clinical applications of enzymes and how they are useful in diagnosis ofdisease
4. Explain the features of active site of enzyme
5. Explain the competitive inhibition with suitable example
6. Explain the non-competitive inhibition with suitable example
7. What are the Co enzymes & Explain the features with example
8. Explain the regulation of enzyme activity
9. Define Iso-enzyme? Give two examples and its importance in clinical diagnosis
10. Explain the types of specificity

Very Short answer questions **(3 marks)**

1. Define Enzymes & Catalyst
2. Define Active site
3. What is Co- enzymes, mention any 2 examples with significance.
4. Define Enzyme unit
5. Define Apo enzyme& Holoenzymes
6. What is Suicide Inhibition
7. List any 3 Therapeutic uses of enzymes.
8. Plasma enzymes
9. Define km
10. Koshland’s induced fit theory
11. Fischer’s template theory
12. Prosthetic groups
13. Examples of Metalloenzymes &Metal activated enzymes

UNIT II – CARBOHYDRATES

Long answer questions **(10 marks)**

1. Write in detail about the Polysaccharides and mention its importance.
2. Properties of Monosaccharides
3. Define Carbohydrates & detail in classification of carbohydrates with examples
4. Explain the reaction of Monosaccharides.

Short Questions **(6 marks)**

1. Define carbohydrate and classify with examples
2. Write a note on Mucopolysaccharides & mention one function of each
3. Differentiate between Glycogen and Starch
4. Define Mutarotation
5. List out the functions of carbohydrates
6. Explain the Clinical importance of monosaccharides
7. Properties of monosaccharides
8. Explain Homopolysaccharides & mention their function
9. Write a note on Disaccharides
10. Define glycosides? Name any 3 glycosides & mention their function

Very Short answer questions **(3marks)**

1. What is heparin? Mention its composition & function
2. List any 2 reducing sugars
3. List any 4 functions of glycoprotein
4. Difference between glycoprotein & proteoglycan
5. Why is sucrose a non-reducing sugar
6. Mention the clinical application of Inulin & Dextran
7. Difference between reducing and non-reducing sugars
8. Define invert sugar
9. What is cellulose? Mention its function
10. Note on Anomers
11. Define Epimers with examples
12. Biological importance of mannitol
13. Optical isomerism with examples.
14. Define amino sugars with examples
15. Define glycosides

NUCLEIC CHEMISTRY

Short Answer Questions **(6 marks)**

1. List any 5 synthetic analog bases and mention its function
2. Short notes on types of RNA & mention its function
3. Define nucleoside and nucleotide by giving suitable examples.
4. Describe the structure of t-RNA and mention its function
5. List the important functions of nucleotides
6. Give a detailed account on Secondary structure of DNA
7. Difference between DNA and RNA
8. Difference between Purines and Pyrimidines

Very Short Answer Questions **(3 marks)**

1. Name the purine and pyrimidine bases of DNA & RNA
2. Differentiate Ribose and Deoxy ribose.
3. Name any 4 minor bases
4. Draw a neat labeled diagram of DNA
5. Mention the types of DNA and give 3 points each
6. What are the biological important bases and its function
7. Define Chargaff's rule
8. Functions of nucleic acid
9. What is ribosomal RNA
10. Draw a neat labeled diagram of t-RNA

UNIT III - LIPIDS

Long answer questions **(10 marks)**

1. what are lipids? classify them. Give biological significance of lipids.
2. what are fatty acids? classify them. Give biological significance of polyunsaturated fattyacids
3. Explain the phospholipids with examples and its function.

Short Questions **(6 marks)**

1. Explain in detail about Sphingomyelins & their function
2. Write a short note on Micelles, Bio membranes
3. Write a short note on Sphingophospholipids
4. Write a short note on Liposomes
5. Write a short note on Triacylglycerol
6. What is saturated fatty acid and give three examples with biological significance
7. What are prostaglandins? Mention their function
8. What is unsaturated fatty acid? Explain the types and biological significance
9. Write a short note on Properties of fatty acids
10. Write a short note on Essential Fatty Acids?
11. Write a short note on Trans fatty acids
12. Write a short note on cholesterol
13. Describe briefly about the classifications of lipids with suitable examples
14. What are the compounds formed from cholesterol?
15. Write in detail about the lipoprotein & its functions

Very Short answer questions **(3 marks)**

1. Lung surfactant
2. Saponification number
3. Iodine number
4. Acid number
5. What are Apo Lipoproteins?
6. Respiratory Distress Syndrome (RDS)
7. Define halogenation
8. What is rancidity of lipids?
9. Omega 3 Fatty acids
10. Cardiolipin
11. Free Fatty Acids
12. Leukotriene's (LTs)
13. Thromboxane's (Tx)
14. Write the products formed due to complete hydrolysis of triacylglycerol

15. What is cephalin

UNIT IV - ENGERY METABOLISM AND NUTRITIONAL BIOCHEMISTRY

Long answer questions **(10 marks)**

1. Write in detail about the RDA, dietary sources, biochemical role and deficiency manifestations of folic acid/ vitamin B12/ calcium /Iron
2. Explain the RDA, dietary sources, biochemical role and deficiency manifestations ofvitamin A/ vitamin D/ vitamin C/ vitamin K

Short Notes **(6 marks)**

1. List out the clinical significance of Vitamin E/ Vitamin K
2. Coenzymes & functions of any 1 B-complex vitamin (Thiamine/ Riboflavin/ Niacin/Pyridoxine/ Folic acid etc.)
3. Explain the Vitamin E has selenium sparing action.
4. Discuss the steps involved in digestion & absorption of calcium/ phosphorous / iron
5. How plasma calcium level is regulated
6. Functions of copper/ selenium/ zinc
7. Role of proteins in diets
8. Describe protein energy malnutrition
9. Nutritional value of protein
10. Dietary role of different lipids
11. Dietary fiber
12. Thermogenic effect of food
13. Obesity
14. Define nitrogen balance &Mention the factor that causes positive & negative nitrogenbalance
15. Define BMR & factor affecting BMR
16. What are Essential Amin Acids? Mention their clinical importance
17. Explain the RDA, sources, biochemical role and deficiency of sodium / potassium
18. What are Essential Fatty Acids? Mention their clinical importance.

Very Short answer questions **(3marks)**

1. Write any 3 causes for Tetany
2. Define Heme proteins/ non heme proteins
3. Hemochromatosis/ Hemosiderosis
4. Iron deficiency anemia
5. Wilson's disease
6. Fluorosis
7. Define balanced diet
8. Define calorific values & Its significance
9. Define Respiratory quotient
10. What is Glycemic index
11. What is pellagra
12. Ceruloplasmin

UNIT V CLINICAL CHEMISTRY

Short Notes **(6marks)**

1. Detail account on basic principle, methodology and diagnostic significance ofelectrophoresis.
2. Detail account on basic principle, methodology and diagnostic significance of

paperchromatography

3. Short notes on Osmolality, significance and measurement.
4. write about the different types of electrophoresis & application of each type
5. Explain the method of cholesterol /urea /glucose estimation
6. write about the different types of electrophoresis & application of each type

Very Short answer questions **(2 marks)**

1. Define Osmolality/ Osmolarity
2. Write the principle of (GOD-POD) method
3. List any 3 simple test to identify Carbohydrates, lipids and proteins
4. Mention the normal values of glucose/ cholesterol/ protein/ urea/ creatinine
5. Define osmolal gap
6. what is Rf value
7. Write the principle of Molisch test /Benedict's test
8. List out the normal/ abnormal constituents of urine

ENVIRONMENTAL CHEMISTRY

Short Notes **(6 marks)**

1. Explain in detail about biomedical waste management
2. Write short notes on air pollution
3. Write short notes on Acid Rain.
4. Write short notes on carbon monoxide
5. Write short notes on mutagenesis.
6. Explain in detail about bio pesticides & its types
7. Explain briefly about the harm full effects of plastics to human health

Very Short answer questions **(3marks)**

1. Define pollutants & give 2 examples
2. What are biomedical wastes?
3. Name five categories of bio pesticides
4. Write about biological water borne disease
5. What are the problems caused by plastics?
6. Name some chemicals causing water borne disorders
7. What is Bio-degradable & Non-biodegradable Waste?
8. Define greenhouse effects
9. What is Ames test?
10. What is meant by carcinogens, and list any three chemicals causing carcinogens
11. What is biosafety?

PAPER 4A - GENERAL MICROBIOLOGY

UNIT –I : GENERAL BACTERIOLOGY

10 MARKS

1. Discuss the methods of collection and transportation of specimens.
2. Define the terms sterilization,disinfection and antisepsis.Name various agents used for sterilization and discuss the role of hot air oven in sterilization.
3. Define the terms sterilization. Discuss the role of moist heat in sterilization and their sterility control methods.
4. Discuss the various types of disinfectants and discuss the role of halogens in chemical disinfection.

6 MARKS

1. Write a short note on contribution of Louis Pasteur.
2. Write a short note on contribution of Robert Koch.
3. Write a short note on contribution of Edward Jenner.
4. Write a short note on Koch postulates.
5. Tabulate the difference between prokaryotes and Eukaryotes .
6. Draw a labeled diagram of a bacterial cell. Describe the cell wall of bacteria.
7. Draw a labeled diagram of Autoclave. Describe the structure and functioning.
8. Draw a labeled diagram of Hot air oven. Describe the structure and functioning.
9. Tabulate the difference between differentiate between flagella and fimbria .
10. Write a short note on spores.
11. Describe bacterial growth curve.
12. What are culture media? Classify and discuss them in brief.
13. Discuss in detail anaerobic methods of cultivation of bacteria.
14. Discuss the methods of preservation of microorganisms.
15. Write a short note on phenols as disinfectant.
16. Write a short note on Aldehydes as disinfectant.
17. Write a short note on Antimicrobial sensitivity testing.
18. Discuss the methods of collection and transportation of specimens.
19. Outline the steps in Gram staining and interpretation.
20. Outline Ziehl-Neelsen staining procedure and interpretation.
21. Name the different types of hospital wastes and discuss in detail the methods of disposal of hospital wastes

3 MARKS

1. Write four functions of bacterial cell wall.
2. Write four differences between gram positive & gram negative bacterial cell wall.
3. What is protoplast & spheroplast.
4. What are the functions of capsule.
5. How will you classify bacteria based on position of flagella.
6. Write four examples of spore producing bacteria.
7. Write four examples of capsule producing bacteria.
8. Write four examples of capnophilic bacteria.
9. Write four examples of strict aerobic bacteria.
10. Write four examples of strict anaerobic bacteria.
11. Write four examples of microaerophilic bacteria.

12. Define sterilization .
13. Define disinfectant .
14. Name the types of filters and their uses.
15. What is cold sterilization.
16. Define inspissation.
17. What is an agar? write its role in preparation of media.
18. Name four selective media.
19. Name four differential media.
20. Name four transport media.
21. Write the composition of TSI agar.
22. Write the principles of catalse test.
23. Write the principles of oxidase test.
24. Name the two motile and non-motile organisms

UNIT -2 : IMMUNOLOGY

6 MARKS

1. Discuss the mechanism of innate and acquired immunity.
2. What is hypersensitivity? Classify hypersensitivity reactions? Describe in detail about type I reactions.
3. Discuss the principle and clinical applications of immunofluorescence technique.
4. Discuss the principle and clinical applications of ELISA technique.
5. Describe the structure and functions of Ig M, Ig G & Ig A.
6. Write a short notes on autoimmunity.
7. Discuss about delayed type hypersensitivity.
8. Describe about phagocytosis process.
9. Herd immunity.
10. Type III Hypersensitivity.

3 MARKS

1. Write the difference between active & passive immunity.
2. Define Immunity.
3. Write two examples of each , live attenuated bacterial & viral vaccines.
4. Write two examples of each , killed bacterial & viral vaccines
5. Write four difference between live & killed vaccines.
6. Define hapten.
7. What is heterophile antigen? write two examples.
8. Write two uses of ELISA.
9. Define hypersensitivity.
10. Difference between immediate and delayed type of hypersensitivity.
11. Define autoimmunity

UNIT -3 SYSTEMIC BACTERIOLOGY

10 MARKS

1. Discuss the pathogenicity and laboratory diagnosis of *Staphylococcus aureus*.
2. Name various organism causing sore throat and discuss in detail the laboratory diagnosis of diphtheria.
3. Classify Streptococci. Discuss the pathogenesis and lab diagnosis of *S.pyogenes*.
4. Classify the Clostridia of medical importance. Describe the pathogenesis, laboratory diagnosis of gas gangrene.

5. Classify Mycobacteria. Give an account on pathogenesis and laboratory diagnosis of pulmonary tuberculosis. Add a note on BCG vaccine.
6. Discuss the morphology, pathogenesis and laboratory diagnosis of syphilis.
7. Discuss in detail about pathogenesis and laboratory diagnosis of enteric fever.
8. List the diarrhea causing bacteria. Write in detail about pathogenesis and laboratory diagnosis of *vibrio*.

6 MARKS

1. Name four causative agents of enteric fever and explain about WIDAL test.
2. Name the UTI causing bacteria. How to collect urine & laboratory diagnosis of *E.coli*.
3. Describe about Toxin produced by *staphylococcus aureus*.
4. Discuss about prophylaxis of diphtheria.
5. Difference between *Streptococcus viridians* & *Streptococcus pneumoniae*.
6. Coagulase test.
7. Tetanus.
8. Explain about morphology and pathogenicity of *Bacillus anthracis*.
9. Classification of shigella and explain the antigenic structure and toxins produced by *Shigella*.
10. Weil's diseases.
11. Laboratory diagnosis of syphilis
12. Discuss the pathogenicity of Chlamydia.

3 MARKS

1. Name the pigments produced by *Pseudomonas*.
2. Name two toxins produced by *Clostridium tetani*.
3. Define Asepsis.
4. Enumerate any four diseases caused by *Streptococcus pyogenes.*
5. Gas gangrene.
6. Name four first line drugs used to treat tuberculosis infections.
7. List four species of *Shigella*.
8. List the cultivation methods of leprae.
9. MRSA.
10. ASO
11. CRP
12. Non –gonococcal urethritis (NGU).
13. Name two selective media for V.cholera
14. Significant bacteriuria.
15. Meningitis .
16. Selective medium of Salmonella
17. VDRL and RPR.
18. Name two transport and enrichment media for *V.cholerae*.
19. What are coliform bacilli? write two examples.
20. Actinomycosis
21. List the atypical mycobacteria.
22. Ghon's focus.
23. BCG vaccine
24. Name the two beta hemolytic bacteria.
25. Mantoux test.

UNIT –4 : VIROLOGY

10 MARKS

1. Name two RNA viruses.Name four methods of transmission of Hepatitis B virus infection in man.Mention the schedule of Hepatitis B vaccination.
2. Mention the modes of transmission of HIV in humans.Draw a neat diagram of HIV and label the parts.List the tests available for the confirmation of HIV in the microbiology laboratory.
3. Describe the laboratory diagnosis and prophylaxis of poliomyelitis.
4. Explain the laboratory diagnosis and prophylaxis of Rabies.

6 MARKS

1. Describe the serological markers of Hepatitis B virus.
2. Describe the prophylaxis of polio virus.
3. Complications of dengue virus.
4. Write a short note on adenovirus.
5. Infectious mononucleosis.
6. List the opportunistic infections in AIDS patient.

3 MARKS

1. Name four DNA virus.
2. Name four RNA virus
3. Haemorrhagic causing virus.
4. MMR vaccine.
5. Draw a neat labeled diagram of HIV.
6. Rabies vaccine.
7. List the cultivation methods of virus.

UNIT –5: PARASITOLOGY

6 MARKS

1. Difference between amoebic and bacillary dysentery.
2. Describe the life cycle of *Entamoeba histolytica*.
3. Describe the life cycle of *Giardia lamblia*
4. Describe the life cycle of *Malaria*
5. Describe the life cycle of *hookworm*
6. Describe the life cycle of *Roundworm*
7. Lab diagnosis of Plasmodium.
8. Describe the lab diagnosis of parasitological samples.

3 MARKS

1. Morphology of *E.histolytica*.
2. Black water fever.
3. Vectors.
4. Morphology of Leishmania.
5. Peripheral blood smear of Malaria.
6. Dog tapeworm.
7. Cysticercus bovis.
8. Cysticercus cellulose.
9. Microfilaria.

UNIT -6: MYCOLOGY

6 MARKS

1. Discuss the laboratory diagnosis of fungal infections.
2. Write a short notes on zygomycosis.
3. Aspergillosis
4. Describe about systemic mycoses.
5. Cryptococcosis - Lesions caused & Laboratory diagnosis.
6. Discuss the opportunistic mycoses.
7. Describe the morphology & cultural characteristics of Dermatophytes.
8. Describe the morphology& cultural characteristics of *Candida albicans*

3 MARKS

1. SDA
2. Name two selective culture media for Candida spp.
3. Name two selective culture media for Cryptococcus spp.
4. What is germ tube test.
5. Mention four fungal laboratory contaminants .
6. Name four dimorphic fungus.
7. Name two examples of yeast.
8. Name four opportunistic fungus.
9. Name four superficial mycoses.
10. Mycetoma

UNIT -7: HOSPITAL INFECTION CONTROL

6 MARKS

1. Biomedical waste management.
2. Write a short note on universal precaution.
3. Write a short note on universal precaution.
4. Mode of transmission of infections.
5. Write short note on the vaccines recommended for health care workers.
6. Recall the procedure to be followed for sharp injury to health care workers.
7. Describe the prevention of Nosocomial infections.

3 MARKS

1. Define segregations.
2. List four infectious waste.
3. Define land filling.
4. What is HICC? List two roles of HICC.
5. List two techniques used for the treatment of infectious waste.
6. Define universal precautions.
7. Define PPE.
8. List four methods to control the Hospital acquired infections.

PAPER 4B - GENERAL PATHOLOGY

LONG ANSWER **(10 MARKS)**

1. Mention the types of necrosis with two example each
2. Mention the types of cellular adaptations with one example each
3. Mention the types of cell injury and describe the changes seen in each type
4. Describe the morphological alterations in reversible cell injury
5. Describe the morphological alterations in irreversible cell injury

SHORT ANSWERS **(6 MARKS)**

1. Tabulate the differences between exudate and transudate
2. Tabulate the differences between benign and malignant tumor
3. Define Gangrene. Mention the types of gangrenes with one example each
4. Mention the factors that influence wound healing and repair
5. Tabulate the differences between acute and chronic inflammation
6. Describe the principle chemical mediators of inflammation
7. Tabulate the differences between necrosis and apoptosis
8. Write a short note on apoptosis
9. Describe causes and morphological features of chronic inflammation
10. Explain granulomatous inflammation with a neat labeled diagram
11. Tabulate the differences between dry and wet gangrene
12. Explain mode of spread of tumors in brief
13. Adverse effects of smoking
14. Write a short note on asbestosis
15. Write a short note on silicosis

VERY SHORT ANSWERS **(3 MARKS)**

1. Define apoptosis. Mention two examples.
2. List the cardinal signs of acute inflammation
3. Define acute inflammation reaction and mention its outcome
4. Define chronic inflammation and give 2 examples
5. Mention the components of granulation tissue
6. Mention the parts of microscope
7. Give 2 examples of granulomatous inflammation
8. Define neoplasia
9. Define hypertrophy. Give 2 example
10. Define atrophy. Give 2 example
11. Define hyperplasia. Give 2 example
12. Define metaplasia. Give 2 example
13. Define reversible cell injury and mention two features
14. Define phagocytosis.
15. Define Virchow triad

HAEMATOLOGY

SHORT ANSWERS **(6 MARKS)**

1. Define anemia. Mention the types of anemia on the basis of etiology.
2. Classify leukemia. Mention general features of acute leukemia.
3. Enumerate various color codlings of various biomedical waste disposal with 4 examples

4. Describe the collection. transport, preservation and processing of clinical specimen
5. Describe the structure and function of different types of WBC'S with a neat labeled diagram
6. Write a short note on occupational health hazards.
7. Describe mechanism of homeostasis
8. Describe various types anticoagulant and its uses with its color coding
9. Explain microscopic examination of urine samples.
10. Describe the method of collection, transport, preservation of CSF.
11. Write short note on Coomb's test
12. Define anemia . Mention the general clinical features and basic interpretation of anemia.
13. Classify hemolytic anemia and mention in brief the laboratory findings

VERY SHORT ANSWERS **(3 MARKS)**

1. Define Landstenier's Law
2. Define blood group
3. Mention the normal platelet count and function of platelets.
4. Mention the types of transfusion transmitted infection
5. Mention 2 causes of Eosinophilia.
6. Mention 2 causes of Neutrophilia.
7. Mention 4 preservative of urine and its indication
8. Define cross matching
9. Mention Principle of major cross matching
10. Mention Principle of minor cross matching
11. Write about the principle of benedicts test.
12. Write about biomedical waste management.

SYSTEMIC PATHOLOGY

LIVER

1. Define Cirrhosis.(3M)
2. Describe in detail about viral hepatitis. (6M)
3. Mention the various stages of alcoholic liver disease(3M)
4. Describe in detail about gall stones.(6M)
5. Write about the etiology, pathogenesis and clinical features of chronic cholecystitis.(10M)

BRAIN TUMOURS

1. Classify brain tumours (3M)

KIDNEY

1. Mention the types of renal calculi.(3M)
2. Describe the clinical features of renal stones.(3M)
3. Define hydronephrosis (3M)
4. Classify renal tumours.(3M)

BONE TUMOURS

1. Classify bone tumours(3M)
2. Give two examples of benign bone tumors.(3M)
3. Give two examples of malignant bone tumours(3M)

FEMALE GENITAL TRACT

1. Classify ovarian tumours(3M)
2. Describe the types of endometrial hyperplasia and risk factors associated with it.(6M)
3. Write a short note on risk factors for endometrial cancer.(6M)
4. Describe the etiopathogenesis and risk factors for cervical cancer.(10M)

BREAST

1. Describe the risk factors and clinical features of breast carcinoma.(10M)
2. Give 2 example of benign breasts tumour (3M)
3. Give 2 example of malignant breast tumours.(3M)

CARDIOVASCULAR SYSTEM

RHEUMATIC HEART DISEASES

1. Enumerate the modified Jones criteria for rheumatic heart disease(6M)

INFECTITVE ENDOCARDITIS

1. List the causative organisms for infective endocarditis(3M)
2. Enumerate the Dukes criteria for infective endocarditis.(6M)

ARTHEROSCLEROSIS

1. Enumerate the risk factors for atherosclerosis.(6M)
2. Mention two complications of atherosclerosis (3M)\
3. Mention the types of Ishemic heart disease. (3M)
4. Write in detail about myocardial infarction. (10M)

RESPIRATORY SYSTEM

LUNG INFECTIONS

1. Describe the various Stages of Pneumonia.(6M)
2. Define Pneumonia.(6M)

COPD

1. Define emphysema.(3M)
2. Define chronic bronchitis.(3M)
3. Define broncheactasis.(3M)
4. Tabulate the differences between chronic bronchitis and emphysema.(6M)
5. Mention various systemic effects of smoking (3M)

ASTHMA

1. Describe the etiopathogenesis and clinical features of bronchial asthma.(6M)
2. Define ARDS(3M)
3. Give 2 examples for conditions associated with ARDS.(3M)

GASTROINTESTINAL SYSTEM

1. Enumerate the clinical features of peptic ulcer.(3M)
2. Describe the Risk factors and clinical features of carcinoma stomach.(10M)
3. Describe the Risk factors and clinical features of carcinoma colon.(10M)

ABILITY ENHANCEMENT COMPULSORY ELECTIVES
AECC-1- ENGLISH QUESTION BANK

UNIT-1 – GRAMMAR

Six Mark Questions

1. Define grammar, Explain the types of grammar with example.
2. What do you mean by noun and Explain its type with examples?
3. Write a brief note on types of sentences with examples.
4. How many types of tenses are there?

Two Mark Questions

1. Define verb.
2. Define Adjective with example.
3. Define Adverb with example.
4. Define Gerund and preposition.
5. What do you mean by conjunction and interjection?
6. How many types of tenses are there?
7. He Said, “My father is ill”.(Change the sentence into indirect speech)
8. He said to her, “Where are you going”? (Change the sentence into indirect speech)
9. They said that they can’t live without water.(change the sentence into direct speech)
10. Radha said, ”I am very busy now”.(Change the sentence into indirect speech)
11. She says that she is a little bit nervous.(change the sentence into direct speech)
12. You are busy, _____? (Fill the sentence with suitable question tag)
13. Helmet makes driving safe, _____? (Fill the sentence with suitable question tag)
14. Dogs cannot fly, _____? (Fill the sentence with suitable question tag)
15. She was talking, _____?(Fill the sentence with suitable question tag)
16. He won’t come today____?(Fill the sentence with suitable question tag)
17. He _____ (drink)tea every morning. (Fill the sentence with suitable tense)
18. I enjoy_____(read) at a cafe.(Fill the sentence with suitable tense)
19. We_____(see) a film last night.(Fill the sentence with suitable tense)
20. They went home, after they_____(finish) their work.(Fill the sentence with suitable tense)
21. I_____(stay) here till you return.(Fill the sentence with suitable tense)
22. I_____ do it tomorrow. (Fill the sentence with modal verb)
23. _____ you help me with the house work, please? (Fill the sentence with modal verb)
24. I _____ speak English.(Fill the sentence with modal verb)
25. The doctor_____ see you now.(Fill the sentence with modal verb)
26. He _____ be the love of my life.(Fill the sentence with modal verb)
27. All_____ submit your notebook.(Fill the sentence with modal verb)
28. Seetha loves Rama. (Change the sentence to passive voice)
29. The story has been read by me. (Change the sentence to active voice)
30. Do you speak English well? (Change the sentence to passive voice)
31. Open the door (Change the sentence to passive voice)
32. Let the T.V be watched by them. (Change into active voice)
33. He admitted his guilt. (Change the simple sentence into complex sentence)

34. In-spite of his hard work, he failed. (Change the simple sentence into compound sentence)
35. It was raining, but they went out. (Change the compound sentence into simple sentence)
36. He failed to prove that he was innocent. (Chance the complex sentence into simple sentence)
37. If you do not work hard, you will fail. (Change the complex sentence into compound sentence)
38. Everest is _____ highest mountain in the world. (Fill up with the suitable article)
39. The rose is _____ beautiful flower. (Fill up with the suitable article)
40. _____ umbrella is useful in rain. (Fill up with the suitable article)
41. Do you paly _____ Piano? (Fill up with the suitable article)
42. _____ unicorn is a special creature. (Fill up with the suitable article)
43. Red _____ danger. (Fill up with suitable prepositions)
44. I acted _____him. (Fill up with suitable prepositions)
45. Mr. Kumar is _____ the office. (Fill up with suitable prepositions)
46. I am ready _____ help. (Fill up with suitable prepositions)
47. Put it _____ (Fill up with suitable prepositions)
48. Bharath is the cleverest of all the boys in the class. (Identify the degrees of comparison)
49. Seetha is taller than Geetha.(Identify the degrees of comparison)
50. Hyderabad is not so hot as Chennai.(Identify the degrees of comparison)
51. I am not so strong as he. (Identify the degrees of comparison)
52. Mumbai is bigger than Hyderabad. (Identify the degrees of comparison)

UNIT-2 : VOCABULARY

Six Mark Questions

1. Define vocabulary and explain its types.
2. How to improve our vocabulary.
3. Write the uses of Dictionary.

Two Mark Questions

1. Use a prefix to make the word meaningful:
Possible
2. Use a prefix to make the word meaningful:
Legal
3. Use a suffix to make the word meaningful:
Beauty
4. Use a suffix to make the word meaningful:
Clever
5. Use a suffix to make the word meaningful:
Danger
6. Give the antonym:
Weak
7. Give the antonym:
Open
8. Give the antonym:
Narrow
9. Give the antonym:
Expand

10. Give the antonym:

Superior

11. Give the synonym:

Incredible

12. Give the synonym:

Ecstatic

13. Give the synonym:

Rest

14. Give the synonym:

Behavior

15. Give the synonym:

Tired

16. Use the following idioms / phrases into sentence:

In black and white

17. Use the following idioms / phrases into sentence:

Get away

18. Use the following idioms / phrases into sentence:

Come forward

19. Use the following idioms / phrases into sentence:

Break down

20. Use the following idioms / phrases into sentence:

Look after someone

21. Write any two words miss used or confused?

22. Define Homophones.

23. Use the homophonic words in the sentences.

Write & right

24. Use the homophonic words in the sentences.

Whole & hole

25. Use the homophonic words in the sentences.

Weight & wait

26. Use the homophonic words in the sentences.

Sell & cell

27. Use the homophonic words in the sentences.

Sum & some

UNIT-3 : WRITING SKILLS
(Six Mark Questions)

1. Make a precise of the following passage and suggest a heading:

Effective speaking depends on effective listening. It takes energy to concentrate on hearing and to concentrate on understanding what has been heard. Incompetent listeners fail in a number of ways. First, they may drift. Their attention drifts from what the speaker is saying. Second, they may counter. They find counter-arguments to whatever a speaker may be saying. Third, they compete. Then, they filter. They exclude from their understanding those parts of the message which do not readily fit with their own frame of reference. Finally, they react. They let personal feelings about a speaker or subject override the significance of the message which is being sent.What can a listener do to be more effective? The first key to effective listening is the art of concentration. If a listener positively wishes to concentrate on receiving a message his chances of success are high. It may need determination. Some speakers are difficult to follow, either because of voice problems or because of the form in which they send a message. There is then a particular need for the determination of a listener to concentrate on what is being said.Concentration is helped by alertness. Mental alertness is helped by physical alertness. It is not simply physical fitness,

but also positioning of the body, the limbs and the head. Some people also find it helpful to their concentration if they hold the head slightly to one side. One useful way for achieving this is intensive note-taking, by trying to capture the critical headings and sub-headings the speaker is referring to. Note-taking has been recommended as an aid to the listener. It also helps the speaker. It gives him confidence when he sees that listeners are sufficiently interested to take notes; the patterns of eye-contact when the note-taker looks up can be very positive; and the speaker's timing is aided-he can see when a note-taker is writing hard and can then make effective use of pauses. Posture too is important. Consider the impact made by a less competent listener who pushes his chair backwards and slouches. An upright posture helps a listener's concentration. At the same time it is seen by the speaker to be a positive feature amongst his listeners. Effective listening skills have an impact on both the listener and the speaker.

2. **Make a precise of the following passage and suggest a heading:**

Despite all the research every one of us catches cold and most of us catch it frequently. Our failure to control one of the commonest of all ailments sometimes seems ridiculous. Medical science regularly practises transplant surgery and has rid whole countries of such killing diseases as Typhus and the Plague. But the problem of common cold is unusually difficult and much has yet to be done to solve it. It is known that a cold is caused by one of a number of viral infections that affect the lining of the nose and other passages leading to the lungs but the confusing variety of viruses makes study and remedy very difficult. It was shown in 1960 that many typical colds in adults are caused by one or the other of a family of viruses known as rhinoviruses, yet there still remain many colds for which no virus has as yet been isolated.There is also the difficulty that because they are so much smaller than the bacteria which cause many other infections, viruses cannot be seen with ordinary microscopes. Nor can they be cultivated easily in the bacteriologist's laboratory, since they only grow within the living cells of animals or plants. An important recent step forward, however, is the development of the technique of tissue culture, in which bits of animal tissue are enabled to go on living and to multiply independently of the body. This has greatly aided virus research and has led to the discovery of a large number of viruses. Their existence had previously been not only unknown but even unsuspected.The fact that we can catch a cold repeatedly creates another difficulty. Usually, a virus strikes only once and leaves the victim immune to further attacks. Still, we do not gain immunity from colds. Why? It may possibly be due to the fact that while other viruses get into the bloodstream where anti-bodies can oppose them, the viruses causing cold attack cells only on the surface. Or it may be that immunity from one of the many different viruses does not guarantee protection from all the others. It seems, therefore, that we are likely to have to suffer colds for some time yet.

3. **Make a precise of the following passage and suggest a heading:**

There is nothing more frustrating than when you sit down at your table to study with the sincerest of intentions and instead of being able to finish the task at hand, you find your thoughts wandering. However, there are certain techniques that you can use to enhance your concentration. "Your concentration level depends on a number of factors," says Samuel Ghosh, a social counsellor. "In order to develop your concentration span, it is necessary to examine various 2 facets of your physical and internal environment," she adds. To begin with one should attempt to create the physical environment that is conducive to focussed thought. Whether it is the radio, TV or your noisy neighbours, identify the factors that make it difficult for you to focus. For instance, if you live in a very noisy neighbourhood, you could try to plan your study hours in a nearby library. She

disagrees with the notion that people can concentrate or study in an environment with distractions like a loud television, blaring music etc. “If you are distracted when you are attempting to focus, your attention and retention powers do not work at optimum levels,” cautions Ghosh. “Not more than two of your senses should be activated at the same time,” she adds. What that means is that music that sets your feet tapping is not the ideal accompaniment to your books. Also do not place your study table or desk in front of a window. “While there is no cure for a mind that wants to wander, one should try and provide as little stimulus as possible. Looking out of a window when you are trying to concentrate will invariably send your mind on a tangent,” says Ghosh. The second important thing, she says, is to establish goals for oneself instead of setting a general target and then trying to accomplish what you can in a haphazard fashion. It is very important to decide what you have to finish in a given span of time. The human mind recognizes fixed goals and targets and appreciates schedules more than random thoughts. Once your thoughts and goals are in line, a focussed system will follow. She recommends that you divide your schedule into study and recreation hours. When you study, choose a mix of subjects that you enjoy and dislike and save the former for the last so that you have something to look forward to. For instance, if you enjoy verbal skill tests more than mathematical problems, then finish Maths first. Not only will you find yourself working harder, you will have a sense of achievement when you wind up. Try not to sit for more than 40 minutes at a stretch. Take a very short break to make a cup of tea or listen to a song and sit down again. Under no circumstances, should one sit for more than one and a half hours. Short breaks build your concentration and refresh your mind. However, be careful not to overdo the relaxation. It may have undesired effects.

4. **Make a precise of the following passage and suggest a heading:**

Research has shown that the human mind can process words at the rate of about 500 per minute, whereas a speaker speaks at the rate of about 150 words a minute. The difference between the two at 350 is quite large. So a speaker must make every effort to retain the attention of the audience and the listener should also be careful not to let his mind wander. Good communication calls for good listening skills. A good speaker must necessarily be a good listener. Listening starts with hearing but goes beyond. Hearing, in other words is necessary but is not a sufficient condition for listening. Listening involves hearing with attention. Listening is a process that calls for concentration. While, listening, one should also be observant. In other words, listening has to do with the ears, as well as with the eyes and the mind. Listening is to be understood as the total process that involves hearing with attention, being observant and making interpretations. Good communication is essentially an interactive process. It calls for participation and involvement. It is quite often a dialogue rather than a monologue. It is necessary to be interested and also show or make it abundantly clear that one is interested in knowing what the other person has to say. Good listening is an art that can be cultivated. It relates to skills that can be developed. A good listener knows the art of getting much more than what the speaker is trying to convey. He knows how to prompt, persuade but not to cut off or interrupt what the other person has to say. At times the speaker may or may not be coherent, articulate and well organized in his thoughts and expressions. He may have it in his mind and yet he may fail to marshal the right words while communicating his thought. Nevertheless, a good listener puts him at ease, helps him articulate and facilitates him to get across the message that he wants to convey. For listening to be effective, it is also necessary that barriers to listening are removed. Such barriers can be both physical and psychological. Physical barriers generally relate to hindrances to proper hearing whereas psychological barriers are more fundamental and relate to the interpretation and evaluation of the speaker and the message.

5. **Make a precise of the following passage and suggest a heading:**

The term dietary fibres refers collectively to indigestible carbohydrates present in plant foods. The importance of these dietary fibres came into the picture when it was observed that the people having diet rich in these fibres, had low incidence of coronary heart disease, irritable bowel syndrome, dental caries and gall stones. The foodstuffs rich in these dietary fibres are cereals and grains, legumes, fruits with seeds, citrus fruits, carrots, cabbage, green leafy vegetables, apples, melons, peaches, pears etc. These dietary fibres are not digested by the enzymes of the stomach and the small intestine whereas most of other carbohydrates like starch and sugar are digested and absorbed. The dietary fibres have the property of holding water and because of it, these get swollen and behave like a sponge as these pass through the gastrointestinal tract. The fibres add bulk to the diet and increase transit time in the gut. Some of these fibres may undergo fermentation in the colon. In recent years, it has been considered essential to have some amount of fibres in the diet. Their beneficial effects lie in preventing coronary heart disease, and decreasing cholesterol level. The fibres like gums and pectin are reported to decrease postprandial (after meals) glucose level in the blood. These types of dietary fibres are recommended for the management of certain types of diabetes. Recent studies have shown that the fenugreek (Methi) seeds, which contain 40 per cent gum, are effective in decreasing blood glucose and cholesterol levels as compared to other gum containing vegetables. Some dietary fibres increase transit time and decrease the time of release of ingested food in colon. The diet having less fibres is associated with colon cancer and the dietary fibres may play a role in decreasing the risk of it. The dietary fibres hold water so that stools are soft, bulky and readily eliminated. Therefore, high fibre intake prevents or relieves constipation. The fibres increase motility of the small intestine and the colon and by decreasing the transit time there is less time for exposure of the mucosa to harmful toxic substances. Therefore, there is a less desire to eat . and the energy intake can be maintained within the range of requirement. This phenomenon helps in keeping a check on obesity. Another reason in helping to decrease obesity is that the high-fibre diets have somewhat lower coefficients of digestibility. The dietary fibres may have some adverse effects on nutrition by binding some trace metals like calcium, magnesium, phosphorus, zinc and others and therefore preventing their proper absorption. This may pose a possibility of nutritional deficiency especially when diets contain marginal levels of mineral elements. This may become important constraints on increasing dietary fibres. It is suggested that an intake of 40 grams dietary fibres per day is desirable.

6. Write a letter to your uncle thanking him for the birthday present he had sent for you.
7. Write a letter to your mother about your daily routine.
8. Write a letter to your younger brother who has grown very weak. Suggest ways how he can improve his health.
9. Write a letter to your younger brother who has grown very weak. Suggest ways how he can improve his health.
10. Write a letter to your father requesting him to buy you a cycle.
11. Write an application to your Principal requesting him to grant leave. Also mention reason/reasons.

12. You are Nirmal/Nirmala, a student of Government High School, Gurgaon. Write an application to the Principal of your school, requesting him to allow you full fee concession.
13. Write an application to the Principal of your school to allow you to change your section.
14. You have lost your library card. Write a letter to the librarian to issue you a duplicate card.
15. Write a letter to the Chairman of the Municipal Board regarding insanitary conditions of the locality you live in.

Rearrange the following jumbled sentences to meaningful sentences:

1.are machines/to think/robots/that use/a computer brain
2.are sent/computer brain/in the robot's parts/messages/from the/to motors
3.can be/to do/of work/robots/programmed/many kinds
4.is the/computer science/concerned with/robotics/field/and engineering/creating robots

Two Mark Questions

1. How is note making important in your profession?
2. How many types of letters are there?
3. Define skimming.

UNIT-4 : SPOKEN COMMUNICATION

Six Mark Questions

1. Write a Dialogue between a shopkeeper and a customer.
2. Write a Dialogue between two friends on the topic of air pollution.
3. Write a Dialogue between two new comers in college campus.
4. Write a Dialogue between a Nurse and a doctor.
5. Write a Dialogue between a student and a teacher.
6. Why is phonetics important in studying English.
7. Write a conversation two friends discussing about the online classes.
8. Describe a brief note on group discussion.
9. What are the good qualities of debater?

Two Mark Questions

1. Write a short note on hazards of cell phone usage?
2. Describe your favorite friend.
3. Define pronunciation.
4. Define intonation.
5. Write any two words in British English and American English.
6. Define debate.

UNIT-5 : LISTENING AND READING SKILLS

Six Mark Questions

1. Read the following and answer the questions given below

   "I Have a Dream" is a public speech delivered by American civil rights activist Martin Luther King Jr. during the March on Washington for Jobs and Freedom on August 28, 1963, in which he calls for an end to racism in the United States and called for civil and economic rights. Delivered to over 250,000 civil rights supporters from the steps of the Lincoln Memorial in Washington, D.C., the speech was a defining moment of the civil rights movement.

   Beginning with a reference to the Emancipation Proclamation, which freed

millions of slaves in 1863, King observes that: "one hundred years later, the Negro still is not free". Toward the end of the speech, King departed from his prepared text for a partly improvised peroration on the theme "I have a dream", prompted by Mahalia Jackson's cry: "Tell them about the dream, Martin!" In this part of the speech, which most excited the listeners and has now become its most famous, King described his dreams of freedom and equality arising from a land of slavery and hatred. Jon Meacham writes that, "With a single phrase, Martin Luther King Jr. joined Jefferson and Lincoln in the ranks of men who've shaped modern America". The speech was ranked the top American speech of the 20th century in a 1999 poll of scholars of public address.

Q1.What issues does Martin Luther King's speech address?
1.Continuation of racism
2.End to racism and civil and economic rights
3. Civil rights
4.Civil War

Q2.What pushes King to speak: "I have a dream"?
1.He reads out the Emancipation Proclamation
2.He is prompted by Mahalia Jackson
3.he is overwhelmed by the crowd
4.Licoln had asked him to give the speech.

Q3.From the last paragraph, give one word for "to leave"
1.Departed
2. Proclamation
3.Improvised
4.Address

Q4.What is the name of martin Luther King's famed speech?
1.The Emancipation Proclamation
2.An Improvisation
3. A Peroration
4.I Have a Dream

Q5.In front of whom does King speak?
1.The civil rights supporters
2.His friends
3.Lincoln
4.The Negroes

Read the following and answer the questions given below

Conflict had existed between Spain and England since the 1570s. England wanted a share of the wealth that Spain had been taking from the lands it had claimed in the Americas.

Elizabeth I, Queen of England, encouraged her staunch admiral of the navy, Sir Francis Drake, to raid Spanish ships and towns. Though these raids were on a small scale, Drake achieved dramatic success, adding gold and silver to England's treasury and diminishing Spain's supremacy. Religious differences also caused conflict between the two countries. Whereas Spain was Roman Catholic, most of England had become Protestant. King Philip II of Spain wanted to claim the throne and make England a Catholic country again. To satisfy his ambition and also to retaliate against

England's theft of his gold and silver, King Philip began to build his fleet of warships, the Spanish Armada, in January 1586.
Philip intended his fleet to be indestructible. In addition to building new warships, he marshaled 130 sailing vessels of all types and recruited more than 19,000 robust soldiers and 8,000 sailors. Although some of his ships lacked guns and others lacked ammunition, Philip was convinced that his Armada could withstand any battle with England.
The martial Armada set sail from Lisbon, Portugal, on May 9, 1588, but bad weather forced it back to port. The voyage resumed on July 22 after the weather became more stable.
The Spanish fleet met the smaller, faster, and more maneuverable English ships in battle off the coast of Plymouth, England, first on July 31 and again on August 2. The two battles left Spain vulnerable, having lost several ships and with its ammunition depleted. On August 7, while the Armada lay at anchor on the French side of the Strait of Dover, England sent eight burning ships into the midst of the Spanish fleet to set it on fire. Blocked on one side, the Spanish ships could only drift away, their crews in panic and disorder. Before the Armada could regroup, the English attacked again on August 8.
Although the Spaniards made a valiant effort to fight back, the fleet suffered extensive damage. During the eight hours of battle, the Armada drifted perilously close to the rocky coastline. At the moment when it seemed that the Spanish ships would be driven onto the English shore, the wind shifted, and the Armada drifted out into the North Sea. The Spaniards recognized the superiority of the English fleet and returned home, defeated.

Q1.Sir Francis Drake added wealth to the treasury and diminished Spain's ___.
unlimited power
unrestricted growth
territory
treaties

Q2. King Philip recruited many __ soldiers and sailors.
warlike
strong
accomplished
timid
inexperienced

Q3. The __ Armada set sail on May 9, 1588.
complete
warlike
independent
isolated

Q4. The two battles left the Spanish fleet ___.
open to change
triumphant
open to attack
defeated
discouraged

Q5. The Armada was __ on one side.
closed off
damaged
alone
circled

2. Read the following and answer the questions given below

Opera refers to a dramatic art form, originating in Europe, in which the emotional content is conveyed to the audience as much through music, both vocal and instrumental, as it is through the lyrics. By contrast, in musical theater an actor's dramatic performance is primary, and the music plays a lesser role. The drama in opera is presented using the primary elements of theater such as scenery, costumes, and acting. However, the words of the opera, or libretto, are sung rather than spoken. The singers are accompanied by a musical ensemble ranging from a small instrumental ensemble to a full symphonic orchestra.

1. It is pointed out in the reading that opera ----.
   A) has developed under the influence of musical theater
   B) is a drama sung with the accompaniment of an orchestra
   C) is not a high-budget production
   D) is often performed in Europe
   E) is the most complex of all the performing arts

2. We can understand from the reading that ----.
   A) people are captivated more by opera than musical theater
   B) drama in opera is more important than the music
   C) orchestras in operas can vary considerably in size
   D) musical theater relies above all on music
   E) there is argument over whether the music is important or the words in opera

3. It is stated in the reading that ----.
   A) acting and costumes are secondary to music in musical theater
   B) many people find musical theater more captivating than opera
   C) music in musical theater is not as important as it is in opera
   D) an opera requires a huge orchestra as well as a large choir
   E) opera doesn't have any properties in common with musical theater.

Read the following passage and answer the questions given below.

Dolphins are regarded as the friendliest creatures in the sea and stories of them helping drowning sailors have been common since Roman times. The more we learn about dolphins, the more we realize that their society is more complex than people previously imagined. They look after other dolphins when they are ill, care for pregnant mothers and protect the weakest in the community, as we do. Some scientists have suggested that dolphins have a language but it is much more probable that they communicate with each other without needing words. Could any of these mammals be more intelligent than man? Certainly the most common argument in favor of man's superiority over them that we can kill them more easily than they can kill us is the least satisfactory. On the contrary, the more we discover about these remarkable creatures, the less we appear superior when we destroy them.

1. It is clear from the passage that dolphins ----.
A) don't want to be with us as much as we want to be with them
B) are proven to be less intelligent than once thought
C) have a reputation for being friendly to humans
D) are the most powerful creatures that live in the oceans
E) are capable of learning a language and communicating with humans

2. The fact that the writer of the passage thinks that we can kill dolphins more easily than they can kill us ----.

A) means that they are better adapted to their environment than we are
B) shows that dolphins have a very sophisticated form of communication
C) proves that dolphins are not the most intelligent species at sea
D) does not mean that we are superior to them
E) proves that Dolphins have linguistic skills far beyond what we previously thought

3. One can infer from the reading that ----.

A) dolphins are quite abundant in some areas of the world
B) communication is the most fascinating aspect of the dolphins
C) dolphins have skills that no other living creatures have such as the ability to think
D) it is not usual for dolphins to communicate with each other
E) dolphins have some social traits that are similar to those of humans.

Read the following and answer the questions given below.

Naval architects never claim that a ship is unsinkable, but the sinking of the passenger-and-car ferry Estonia in the Baltic surely should have never have happened. It was well designed and carefully maintained. It carried the proper number of lifeboats. It had been thoroughly inspected the day of its fatal voyage. Yet hours later, the Estonia rolled over and sank in a cold, stormy night. It went down so quickly that most of those on board, caught in their dark, flooding cabins, had no chance to save themselves: Of those who managed to scramble overboard, only 139 survived. The rest died of hypothermia before the rescuers could pluck them from the cold sea. The final death toll amounted to 912 souls. However, there were an unpleasant number of questions about why the Estonia sank and why so many survivors were men in the prime of life, while most of the dead were women, children and the elderly.

1. One can understand from the reading that ----.

A) the lifesaving equipment did not work well and lifeboats could not be lowered
B) design faults and incompetent crew contributed to the sinking of the Estonia ferry
C) 139 people managed to leave the vessel but died in freezing water
D) naval architects claimed that the Estonia was unsinkable
E) most victims were trapped inside the boat as they were in their cabins

2. It is clear from the passage that the survivors of the accident ----.

A) helped one another to overcome the tragedy that had affected them all
B) were mostly young men but women, children and the elderly stood little chance
C) helped save hundreds of lives
D) are still suffering from severe post-traumatic stress disorder
E) told the investigators nothing about the accident

3. According to the passage, when the Estonia sank, ----.

A) there were only 139 passengers on board

B) few of the passengers were asleep
C) there were enough lifeboats for the number of people on board
D) faster reaction by the crew could have increased the Estonia's chances of survival
E) all the passengers had already moved out into the open decks

6.Medical report writing.
You are a staff nurse in the psychiatry ward.Mr.Rammohan aged 40 was admitted in your ward with the complaint of Dengue .Write a report of this to your clinical instructor.

7.Medical report writing.
You are a staff nurse in the psychiatry ward.Ms.lalitha aged 34 was admitted in your ward with the complaint of Alzheimer disorder(memory loss) .Write a report of this to your clinical instructor.

8.Medical report writing.
You are a staff nurse in the psychiatry ward.Mr.Ranjith aged 50 was admitted in your ward with the complaint of Obsessive compulsive disorder .Write a report of this to your clinical instructor.

9.Medical report writing.
You are a staff nurse in the special ward.Mrs. Jaya priya aged 30 was admitted in your ward with the complaint of Diarrhea .Write a report of this to your clinical instructor.

10.Medical report writing.
You are a staff nurse in the psychiatry ward. Mr.Vijay aged 20 was admitted in your ward with the complaint of Anxiety disorder .Write a report of this to your clinical instructor.

11.Write a Comprehensive Report on the outbreak of Covid-19 in your Locality.

12.Write a Comprehensive Report on the outbreak of Malaria in your Locality.

13.Write a Comprehensive Report on the outbreak of Dengue in your Locality.

14.Write a Comprehensive Report on the outbreak of Cholera in your Locality.

15.Write a Comprehensive Report on the outbreak of Pneumonia in your Locality.

Two Mark Questions

1. How to make effective reading?
2. What are the types of reading?
3. Why medical report writing is important in your profession?
4. What are the skills you should have for successful Telephone conversation.

II YEAR

PAPER 5 - CLINICAL PHARMACOLOGY

UNIT 1: ANTISIALOGUES, ANTIEMETICS

6 Marks

1. Compare and contrast pharmacology of atropine &glycopyrolate.
2. Discuss briefly about the indications, contraindications systemic effects, and adverse effects of glycopyrolate.
3. Discuss briefly about the pharmacodynamics &clinical uses of atropine.
4. Discuss briefly about mechanism of action, uses& adverse effects of proton pump inhibitors.
5. Classification of antiemetic's.
6. Write about the mechanism of action & pharmacokinetics of ondanseteron?
7. Write the clinical uses of atropine?
8. Mention the clinical use of glycopyrolate?
9. Mention the types of muscarinic receptors & their location?
10. Mention the drugs used to treat PONV?
11. What are the prophylactic drugs used for PONV?

3 Marks

1. What is meant by atropine flush?
2. What is meant by atropine fever?
3. Mention any 2 clinical uses of atropine?
4. Mention any 2 clinical uses of glycopyrolate?
5. What is the premedication dose of glycopyrolate?
6. Mention any 2 adverse effects of ondanseteron?
7. Mention any 2 adverse effects of metaclopromide?
8. Mention the clinical uses of dexamethasone?
9. Mention the adverse effects of dexamethasone?
10. Mention any 2 clinical uses of ondanseteron?
11. Mention any 2 clinical uses of metaclopromide?
12. Mention the vagolytic dose of atropine.
13. Mention the antisialogue of glycopyrolate

UNIT 2: SEDATIVES/ANXIOLYTICS AND NARCOTICS

6 Marks

1. What is the mechanism of action and clinical uses of benzodiazepines?
2. Explain about the systemic effects of diazepam?
3. Write any 5 clinical uses of midazolam?
4. Explain about the pharmacokinetics of midazolam?
5. Compare & contrast of neuroaxial opioids v/s intravenous opioids?
6. Describe the pharmacokinetics of morphine?
7. How are the pharmacokinetics of fentanyl different from morphine?
8. List the commonly used opioids agonist and there relative potencies?
9. What are the different types of opioids receptors and the effects at these receptors?
10. Discuss the routes of delivery for analgesic drugs with example?
11. Classification of opioids receptors?
12. Write short note on opioids antagonist?
13. Discuss briefly about the clinical uses, adverse effects of pentazocine?
14. Mention the clinical uses & adverse effects of fentanyl?
15. Classifications of NSAIDS?
16. Explain briefly about paracetamol poisoning –clinical features, toxicity and treatment.
17. Classifications of OPIODS?

3 Marks

1. Write about benzodiazepine antagonist?
2. Clinical uses of lorazepam?
3. Mention any 4 clinical use of midazolam?
4. Mention the dose of diazepam for induction & sedation?
5. Mention the dose of midazolam for premedication & sedation?
6. What are the side effects of morphine?
7. What about naloxone?
8. Write about transdermal fentanyl patch?
9. Mention the side effects of diclofenac?
10. Clinical uses of paracetamol?
11. Write dose of fentanyl,morphine for induction?

UNIT 3: H2 BLOCKERS & ANTACIDS

3 Marks

1. Name any 2 drugs for treating peptic ulcer disease?
2. Mention the clinical uses of ranitidine?
3. Mention the adverse effects of ranitidine?
4. Write about the pharmacokinetics of ranitidine?
5. Clinical uses of cimetidine.
6. Clinical uses of famotidine.
7. Mention the advantage of gelusil?
8. Mention any 2 indications for using sodium citrate?
9. Mention the advantages of muccine gel?

UNIT 4: INDUCTION AGENTS

10 Marks

1. Discuss briefly about the mechanism of action, systemic effects of propofol?
2. Explain about the pharmacokinetics, pharmacodynamics of thiopentone sodium?
3. Discuss briefly about the pharmacokinetics, systemic effects of ketamine?
4. Compare & Contrast pharmacology of thiopentone and propofol.
5. Compare& Contrast pharmacology of ketamine and propofol.

6 Marks

1. Discuss briefly about the systemic effects of thiopentone sodium?
2. Explain about the pharmacokinetics of thiopentone?
3. Discuss briefly about the complication of thiopentone?
4. Discuss briefly about the systemic effects of propofol?
5. Mention the complication of propofol?
6. Explain about the clinical uses of propofol?
7. Mention the advantage & contraindication of ketamine?
8. Explain briefly about the systemic effects of ketamine?
9. Mention the clinical uses of ketamine?

3 Marks

1. Mention any 4 physical properties of thiopentone sodium?
2. Mention the composition of propofol?
3. Mention any 2 physical properties of propofol?
4. Write any 2clinical uses of ketamine?
5. Mention any 4 contraindications of ketamine?
6. Any 2 clinical uses of propofol?
7. Write about Etomidate?
8. What are the drugs that decrease ICT?
9. Mention the advantage of Etomidate?
10. What is meant by dissociate ANAESTHESIA?

11. Mention the clinical uses of thiopentone sodium?
12. Mention the contraindication of thiopentone?

UNIT 5: MUSCLE RELAXANTS

6 Marks

1. Classify neuromuscular blockers?
2. Describe the difference between phase1 and phase2 block?
3. Describe the mechanism of action of NMBD at neuromuscular junction?
4. Discuss about the systemic effect of depolarizing agents?
5. Distinguish between steroidal & benzyl Isoquinolinium compound?
6. What are the factors prolonging the nm blockade?
7. Explain briefly about the pharmacokinetics & adverse effects of vecuronium?
8. Write about the clinical effects & pharmacokinetics of atracurium?
9. Mention the clinical uses of neostigmine?
10. Compare & contrast non-depolarizing and depolarizing muscle relaxants.
11. Write about the systemic effects of NMBDS?

3 Marks

1. What are the signs of adequate reversal?
2. How is succinylcholine metabolized?
3. What is the intubating dose of succinylcholine?
4. Mention the side effects of succinylcholine?
5. What is the choice of NMBD influenced by?
6. Difference between cisatracurium&atracurium?
7. What are the drugs which decreases pseudo cholinesterase?
8. Name the conditions increasing pseudo cholinesterase?

UNIT 6: INHALATIONAL AGENTS

6 Marks

1. Discuss the factors which increase & decrease MAC?
2. Discuss the factors which influence transfer of inhaled anesthetic from machine to lungs?
3. What is a blood gas partition co efficient? Mention BG coefficient for the drugs?
4. What is second gas effect?
5. What is diffusion hypoxia?
6. Discuss the effects of inhaled anesthetics on mean arterial pressure,cardiac output, SVR?
7. What are the effects of inhaled anesthetics on cerebral blood flow?
8. Mention the properties of nitrous oxide?
9. Discuss about the systemic effects, contraindication of N2O?
10. Discuss briefly about MAC? Write MAC value for any 4 agents?

3 Marks

1. What are the MAC values of isoflurane?
2. Mention the complication of halothane agents?
3. Mention the anesthetic properties of isoflurane?
4. Mention the anesthetic properties of desflurane?
5. What are the agents that increase ICT?
6. Write about laughing gas?
7. Mention the contraindication of nitrous oxide?

UNIT 7: REVERSAL AGENTS

3 Marks

1. Mention the dose of neostigmine?
2. Mention the adverse effects of neostigmine?
3. What is the dose of atropine for reversal?

4. What is the dose of glycopyrolate for reversal?
5. Mention some conditions where atropine is preferred to glycopyrrolate for reversal?

UNIT 8: LOCAL ANESTHETICS

10 Marks

1. Write about the classification of local anesthetics? Compare any 2 local anesthetics.
2. Explain the mechanism of action of local anesthetics. Discuss the preparation & therapeutic uses of xylocaine& bupivacaine?
3. Write about the various concentrations of bupivacaine and its clinical uses.

6 Marks

1. Discuss briefly about local anesthetic toxicity?
2. What are the available preparation of xylocaine& one clinical uses of each?
3. Explain briefly about the systemic effects of LA?
4. Classification of local Anesthetic drugs?
5. Compare & contrast bupivacaine &levo-bupivacaine.
6. Write about the clinical uses & advantages of Ropivacaine.

3 Marks

1. Mention any 2 clinical uses of 2% lignocaine jelly?
2. Mention the indication of emia ointment & its adverse effects?
3. What are the available percentage of xylocaine?
4. Name the drugs used for epidural ANAESTHESIA?
5. Clinical symptoms of toxic reactions of LA?
6. Mention the advantages of amide linked local anesthetic?
7. Mention the disadvantage of ester linked local anesthetic?
8. Mention thetoxicdose of lignocaine & bupivacaine?
9. List out the difference between xylocaine 2% and xylocard 2%?
10. Mention the advantages of lignocaine with adrenaline 2%?
11. Mention the contraindications of lignocaine with adrenaline %?

UNIT 9: EMERGENCY DRUGS

6 Marks

1. Discuss the mode of administration, dilution, dosage, systemic effects,indications,side effects of adrenaline?
2. Classification of diuretics.
3. Mention the clinical uses of adrenaline?
4. Write about dopaminergic receptors and drugs acting on it?
5. Mention the therapeutic uses of nor adrenaline?
6. Discuss briefly about the systemic effects& clinical uses of dobutamine?
7. Explain briefly about pharmacokinetics & clinical uses of ephedrine?
8. Clinical uses of xylocard?
9. Mention the clinical uses, systemic effects,dosage& mode of administration of vasopressin?
10. Classify oral hypoglycemic agents?

3 Marks

1. Write any 2 clinical uses of furosemide?
2. Write any 2 drugs for bronchial asthma treatment?
3. Mention the therapeutic uses of hydrocortisone?
4. Write any 4 indications of steroid therapy?
5. Role of oxytocin during LSCS?
6. Name any 2 uterine relaxants used clinically?
7. Write about adverse effects of furosemide?
8. Name any four emergency conditions in which hydrocortisone is used?

9. Name the drugs used in hypertensive emergencies?
10. Name any 2 side effects of insulin?
11. Mention any 2 anticonvulsant drugs?
12. Mention four drugs for congestive heart failure?

UNIT 10: SYSTEMIC DRUGS

3 Marks

1. What are the drugs used in anaphylactic shock?
2. Mention the location of alpha receptors?
3. Mention the location of beta receptors?
4. Define inotropes?Name any 2 drugs?
5. Mention the indications of dopamine?
6. Mention the indications of dobutamine?
7. Write the dosage atropine and glycopyrolate?

6 Marks

1. Classify anti arrhythmic drugs with suitable examples?
2. Explain the mechanism of action & therapeutic uses of any one class of anti arrhythmic drug?
3. Write about classification of bronchodilators add note on theophylline?
4. Classify antihypertensive drugs?
5. Classify beta blockers. Write about the clinical uses & adverse effects of beta blockers?
6. Therapeutics uses & adverse effects of beta blockers?
7. Classify antihistamines. Explain briefly the clinical uses of antihistamines?
8. Explain the mechanism of action, pharmacodynamics of NTG?
9. Mention the clinical uses & adverse effects of NTG?
10. Compare & contrast NTG &SNP?
11. Classification of diuretics?
12. Clinical uses of furosemide?
13. Discuss about clinical uses & adverse effects of metformin?
14. Classify oral hypoglycemia agents?
15. Mention the uses & adverse effects of mannitol?
16. Discuss in detail about the clinical uses& adverse effects and mechanism of action of calcium channel blockers?
17. Mention any 5 adverse effects of systemic steroids on prolonged drug therapy?

UNIT 11: MISCELLANEOUS DRUGS

3 Marks

1. Write about the composition of ringer lactate?
2. Mention the contraindication of RL?
3. Write about haemaccel?
4. Mention any 2 clinical uses of protamine?
5. Mention the clinical uses of ketorolac?
6. Name any 2 antipsychotic drugs?
7. List out the commonly used surgical prophylactic antibiotics?
8. Mention the commonly uses IV fluids inside the OT?
9. Difference between crystalloids and colloids?

PAPER - 6a GENERAL MICROBIOLOGY

UNIT -1 : Importance of sterilization and disinfection

10 MARKS

1. List the chemical disinfectants used to sterilize the hospital instruments? Explain in
detail about Quaternary ammonium compounds?
2. Describe in detail about the infection control measures for Intensive care units?
3. Discuss in detail about the etiology, diagnosis and control of Nosocomial infections?
4. Define Sterilization? Describe in detail about physical methods of sterilization?

6 MARKS

1. Brief note on Hot-air oven and its uses with suitable diagram?
2. Difference between Sterilization and Disinfection?
3. Brief note on Autoclave and its uses with suitable diagram?
4. Biomedical waste management
5. Describe the steps for cleaning and disinfection of respiratory equipment
6. Describe the disinfecting agents used for drinking water?
7. Write a short note on occupationally acquired infections in Health Care and Laboratory Workers?

3 MARKS

1. Define Sterilization?
2. Define Disinfection?
3. Pasteurization
4. Testing of disinfectants
5. Sterilization controls
6. Membrane filters
7. Name the biological controls used for testing efficacy of sterilization techniques?
8. Tyndallization

UNIT -2: Health care associated infections

10 MARKS

1. Enumerate bacteria causing Urinary Tract Infection. Describe the laboratory diagnosis and interpretation of UTI?
2. List out the infections associated with blood transfusion? Explain in detail about catheter associated blood infections?
3. List the microbial etiology of Diarrheal diseases. Describe the pathogenesis and lab diagnosis of Shigellosis.
4. Enumerate the microbes causing PUO. Describe laboratory diagnosis of Scrub typhus?
5. List microbes causing Lower Respiratory tract infections. Describe lab diagnosis of pulmonary tuberculosis?
6. Describe in detail about the risk factors, pathogenesis and lab diagnosis of ventilator associated pneumonia?
7. List out the microbes causing surgical site infections? Explain in detail about the pathogenesis and laboratory diagnosis of surgical site infections?
8. List the etiological agents of Meningitis. Describe laboratory diagnosis of Meningococcal meningitis

6 MARKS

1. Describe the details of Personal Protective Equipment (PPE)?
2. Brief an account on Potential strategies to preventventilator-associated pneumonia (VAP)?
3. Brief an account on preventive measures of catheter-related bloodstream

infection (CRBSI)?
4. Brief an account on preventive measures of urinary tract infection (UTI)?
5. Brief account on antibiotic associated diarrhea?
6. Write about the measures used to prevent the occupational acquired infections?
7. Write about the clinical manifestations of Varicella – Zoster infection?
8. Brief account on Chickenpox?
9. Describe the role of microbiologic diagnosis on ventilator associated pneumonia?
10. Describe an algorithm for diagnosis and treatment of Ventilator associated pneumonia?
11. Explain how to manage the multi-drug resistant organisms in Ventilator associated pneumonia?
12. Explain about the General Management of Catheter-Related Infection?
13. Describe the management of patients with short-term central venous catheter–related or arterial catheter–related bloodstream infection
14. Describe the types of intravascular devices and comments on their use?
15. Write a brief summary on good laboratory practices?
16. Write a short note on occupationally acquired infections in agricultural workers?

3 MARKS
1. Define Negative-pressure ventilation?
2. Name the types of surgical site infections?
3. List the causative agents of occupationally acquired infections?
4. Explain Clinical pulmonary infection score (CPIS)
5. List out the microbes of occupationally acquired pneumonia?

UNIT -3: Drug resistant bacteria
10 MARKS
1. Write a detailed account on the Recommendations for Antimicrobial Stewardship?

6 MARKS
1. Vancomycin Resistant Enterococci (VRE)
2. Methicillin Resistant Staphylococcus aureus (MRSA)

3 MARKS
1. MRSA
2. List the ESBL producing bacteria
3. Name the antibiotic inhibiting the cell wall synthesis of bacteria.
4. Name the antibiotic inhibiting the protein synthesis of bacteria.
5. Name the antibiotic inhibiting the DNA synthesis of bacteria.

UNIT -4 : Occupationally acquired infections and its prevention
10 MARKS
1. Classification of human Herpes viruses? Describe pathogenesis and laboratory diagnosis of Human herpes viruses?
2. List out the microbes causing oral-fecal route of infection? Explain in detail about pathogenesis and lab diagnosis of Salmonella?
3. Discuss Infective Endocarditis- its etiology, lab diagnosis and treatment?
4. Describe the antigenic properties, pathogenesis and laboratory diagnosis of hepatitis B viruses?
5. Describe the antigenic, genomic properties, pathogenesis and laboratory diagnosis of Human Immunodeficiency virus?

6 MARKS
1. Enumerate the Bacterial pneumonia
2. Presumptive coliform count
3. Pseudomembranous colitis
4. Non gonococcal Urethritis

5. Enumerate microbes causing food poisoning
6. Describe the mechanism of drug resistant of bacteria
7. Enumerate the etiological agents of viral pneumonia?
8. Describe the pathogenesis of Respiratory syncytial virus?
9. Describe the antigenic structure of Influenza virus?
10. List out the important causative agents of bioterrorism?
11. Enumerate Zoonotic diseases
12. Describe the laboratory acquired infections?
13. Multi-drug resistant tuberculosis (MDR-TB)
14. Describe the Pathogenesis of congenital cytomegalo virus infection?
15. Application of molecular techniques in Clinical microbiology.
16. Write about a key fact on Ebola Viral Diseases?
17. Short notes on antigenic variations of Salmonella?
18. List the salient features for identifying *Salmonella typhi*?
19. Describe the pathogenesis of Herpes Zoster infection?
20. Describe the clinical manifestations of Hepatitis C virus?
21. Describe the complications of Hepatitis A viruses?
22. Western Blotting
23. Describe the strategies for HIV testing in India?
24. Describe the role of screening the blood and blood products of HIV infections?
25. Describe the role of preventive measures on AIDS disease?
26. Difference between endotoxins and exotoxins?
27. Difference between *Mycobacterium tuberculosis* and *Mycobacterium bovis*?

3 MARKS

1. List out the Normal flora of skin
2. Significant bacteriuria
3. List out the microbes designated as carrier in humans
4. Define Cross infections
5. Petroff's method
6. Tzanck smear
7. Lymphocytic Choriomeningitis
8. Latent Tuberculosis
9. Types of cytomegalo virus infection
10. Complications of cytomegalo virus infection
11. BCG vaccine
12. Craigie's tube method
13. Flagellar antigen
14. Endotoxin
15. Shiga toxin
16. Name the pigments produced by *Pseudomonas aeruginosa*?
17. Acute Brucellosis
18. Chronic Brucellosis
19. Ghon's focus
20. Cord Factor of *Mycobacterium tuberculosis*
21. Mantoux Test
22. Name the Hepatitis viruses caused by fecal-oral route of infection?
23. List out the screening tests for the diagnosis of HIV infection?
24. List out the antiviral drugs against HIV infection?
25. Paucibacillary tuberculosis
26. Koch's Phenomenon
27. List out the complications of pulmonary tuberculosis?

PAPER -6b CLINICAL PATHOLOGY

UNIT- I

10 Marks

1. Describe the structure and function of WBC.
2. Define heamatopoiesis. Describe the various stages of Erythropoiesis
3. Define heamatopoiesis. Describe the various stages of Leucopoiesis.

6 Marks

1. Define hematopoeisis? Describe the various stages of erythropoeisis
2. Define hematopoeisis? Describe the various stages of Leucopoiesis.
3. Describe about Erythrocytes and their functions.
4. Explain granulocytes and its morphology.
5. Brief description of structure and function of red blood cells.
6. Describe structure and function of different types of WBC
7. Describe buffy coat.
8. Describe structure and function of platelets

3 Marks

1. Mention the any four functions of blood
2. Mention the different components of blood
3. Write the normal range of RBC count and mention two function of RBCs
4. Write the normal range of platelet count and mention two function of platelets
5. Draw and label a neutrophil
6. Draw and label a eosinophil
7. Draw and label a basophil
8. Draw and label a monocyte
9. Draw and label a lymphocyte
10. Write the differential count with percentage and range of different types of WBCs.
11. Draw and label the buffy coat.
12. Mention various types of granulocytes.
13. Enumerate 4 functions of plasma.
14. Define Haematopoiesis.
15. Define Erythropoiesis
16. Define thrombopoiesis.
17. Name 4 conditions associated with Leucocytosis.
18. Describe the structure and function of platelets.

UNIT – II

6 Marks

1. Describe the various methods of blood collection.
2. What are different type's vacutainers with color codes?
3. Describe the technique of bone marrow aspiration with indications.

3 Marks

1. What are the precautions to be followed in collecting blood samples?
2. What the methods of disposal are of infected and sharps.
3. What are the advantages of vacutainer
4. Write two indications of bone marrow aspiration.

UNIT – III

6 Marks

1. Mention the types of anticoagulants and their mechanism and uses.
2. Mention different types vacationers with its color codes.

3 Marks

1. Mention the mechanism of action of EDTA.
2. Mechanism of action and uses of Sodium Citrate.
3. Mechanism of action and uses of Heparin
4. Name 4 commonly used anticoagulants in haematologic investigation.

UNIT – IV

6 MARKS

1. Calculation of Red cell indices.
2. Mention the various methods of Hb estimation
3. Write about Sahli's acid haematin method.
4. Describe the manual method of evaluation of total RBC count
5. Hb estimation by specific gravity method.
6. Describe the principle of hemocytometer in cell counts with a neat diagram.
7. Mention the different methods of estimation of ESR.
8. Describe Westergren method of ESR estimation.
9. Describe Wintrobe method of ESR estimation.
10. Describe factors affecting ESR.
11. Mention the different methods of estimation of PCV.
12. Describe the Wintrobe method of estimation of PCV.
13. Describe the microhematocrit method of estimation of PCV.

3 MARKS

1. Define Packed cell volume.
2. Define MCV
3. Define MCH
4. Define MCHC
5. Mention the various diluting fluid used in RBC count
6. Mention the composition of RBC fluid
7. Principle of hemocytometer.
8. Principle of ESR.
9. Write about the stages of ESR.
10. Mention difference between wintrobe and Westergren tubes.
11. Mention the constituents of Drabkins's solution.
12. Mention the red cell indices and their normal values.
13. Name 4 methods for estimating haemoglobin.
14. Mention conditions with increased ESR level.
15. Mention conditions with decreased ESR level.
16. Mention different methods of estimation of ESR.
17. Mention clinical significance of ESR.
18. Mention the different methods of estimation of PCV.
19. Mention the significance of PCV.

UNIT –V

6 Marks

1. Describe the manual method of evaluation of total WBC count.
2. Describe the manual method of evaluation of Absolute Eosinophil Count.

3 Marks

1. Mention the components of WBC diluting fluid
2. Define absolute Eosinophil count.
3. Mention the components of AEC diluting fluid.
4. Give normal values of platelet count
5. Give the normal value of total WBC count.
6. Define leucopenia.
7. Define leukocytosis.

UNIT –VI: Platelet Parameters

6 Marks

1. Write about the manual method of estimation of total Platelet count.

3 Marks

1. Write the normal range of platelets.
2. Write the functions of platelets.
3. Composition of platelet diluting fluid.

UNIT – VII: MANUAL CELL COUNTING

3 Marks

1. Draw and label a haemocytometer
2. Advantages and disadvantages of manual cell counting.

UNIT VIII, IX & X – PREPARATION OF SMEARS

10 Marks

1. Describe the preparation, procedure and examination of Peripheral smear.
2. Describe the preparation, procedure and calculation of reticulocyte count.
3. Describe the preparation, advantages and disadvantages of Romanowsky stains.

6 Marks

1. Describe preparation of Giemsa stain and write about thick and thin smear preparation.
2. Describe buffy coat smear and wet preparation.
3. Describe bone marrow imprint and crush preparation.
4. Describe the troubleshooting in peripheral smear preparation.
5. Describe the differential counting in peripheral smear and explain the clinical significance of DLC.

3 Marks

1. Write 4 examples of Romanowsky stains
2. What is neutrophilia? Name two causes of neutrophilia.
3. What is eosinophilia ? Name two causes of eosinophilia.
4. What is lymphocytosis ? Name two causes of lymphocytosis..
5. Name the different types of parasites which can be indentified in peripheral blood.
6. Give two uses of buffy coat preparation.
7. Write composition of buffy coat.
8. Mention the sites for bone marrow aspiration.
9. Composition of Leishman’s stain.
10. Composition of Wright stain.
11. Composition of Giemsa stain.
12. Composition of brilliant cresyl blue stain.
13. Write the calculation and normal value of reticulocyte count.
14. Write the significance of reticulocyte count.
15. Draw and name any two morphological abnormalities in RBCs.
16. Mention the four types of malarial parasites.
17. Preparation of thick and thin smears.
18. Write the various RBC inclusion bodies.
19. Trouble shooting in Peripheral smear.

UNIT – XI & XII - ANEMIA

6 Marks

1. Describe the condition of IDA and explain its causes.
2. Define Anemia and mention general clinical features and basic interpretation of Anemia.
3. Write about Megalobalstic anemia.
4. Mention types of Anemia on the basis of etiology.

5. Describe the etiology, clinical findings and laboratory findings of IDA
6. Explain the laboratory investigations bone marrow and serum iron profile in IDA.
7. Describe the etiology, clinical findings and laboratory findings of megalobalstic anemia.
8. Describe the biochemical test for megaloblastic anemia.
9. Classify hemolytic anemia.
10. Write a short note on sickle cell anemia.
11. Describe in detail about Hemoglobin electrophoresis.
12. Approach in diagnosis of hemolytic anemia.

3 Marks
1. Write in brief about osmotic fragility test.
2. Explain Sickle cell preparation
3. Explain about the method of estimation of fetal Hb.
4. Definition of hemolytic anemia.
5. Mention two causes of IDA.
6. Mention two causes of megalosblastic anemia.
7. Define anemia and write the normal range of RBCs
8. Write four clinical features of anemia
9. Draw and label peripheral blood smear in sickle cell anemia
10. Draw and label peripheral blood smear in megaloblastic anemia
11. Draw and label peripheral blood smear in Iron deficiency anemia

UNIT – XIII– WBC Disorders
6 Marks
1. Describe various benign leucocyte disorders.
2. Explain about cytochemical stains in Leukaemia.
3. Describe the classification of leukemia and write about AML
4. Describe the classification of leukemia and write about ALL
5. Describe the classification of leukemia and write about CML
6. Describe the classification of leukemia and write about CLL

3 Marks
1. Define leukocytosis and normal range of WBCs
2. Define neutrophilia and any two causes of neutrophilia.
3. Define eosinophilia and any two causes of eosinophilia.
4. Define lymphocytosis and any two causes of lymphocytosis.
5. Define monocytosis and any two causes of monocytosis.
6. Define basophilia and any two causes of basophilia.
7. Define leucopenias.
8. Define leukemoid reaction.
9. Define Leukemia.

UNIT –XIV – Platelet Disorders
6 Marks
1. Describe the coagulation cascade.
2. Bleeding time.
3. Clotting time.
4. Prothrombin time
5. Define Clot retraction test.
6. Describe the manual method of platelet count and mention the clinical significance.

3 Marks
1. Define hemostasis.
2. Name four clotting factors.

3. Name two acquired hemorrhagic disorders.
4. What are the screening tests for hemorrhagic disorders?
5. Define purpura. write in brief about tourniquet test.
6. Define thrombocytopenia.

UNIT –XV – AUTOMATION AND QUALITY CONTROL IN HEMATOLOGY:

6 Marks

1. What is critical value alert? Give two examples
2. Describe the application of flow cytometer in automated analyzer.
3. Describe care, maintenance and cleaning of automated analysers.

3 Marks

1. Define the principle of autoanalyser.
2. Write in brief about WBC flagging.
3. Write two advantages of automated analyzer.
4. Write two disadvantages of automated analyzer.
5. Mention four limitations of manual cell counting.
6. What are the types of automated analysers.

UNIT –XVI – SLE WORK UP AND SPECIAL PROCEDURES

6 Marks

1. Describe the morphology, causative agents and various methods of demonstration of LE cell.
2. Explain the steps involved in PCR

3 Marks

1. Define LE cell
2. Name the methods used for demonstration of LE cell.
3. Principle of flow cytometery
4. Principle of PCR
5. Principle of Immunopheno typing.
6. Write any four Advantages of PCR
7. Write any four advantages of flow cytometery.

UNIT –XVII – URINE AND OTHER BODY FLUIDS EXAMINATION

6 Marks

1. Describe the types of preservation of urine.
2. Describe the collection, types of sample, preservation and labeling of urine samples.
3. Describe the physical examination of urine.
4. Describe the tests to detect protein in urine.
5. Describe the tests to detect sugar in urine.
6. Describe the tests to detect ketone bodies in urine.
7. Describe the test to detection of bile salts and blie pigments and urobilinogen in urine.
8. Describe the microscopic examination of cells in urine with a neat diagram.
9. Describe the function, collection, gross appearance and morphological examination of CSF.
10. Describe the centrifugation technique both conventional and cyto centrifugation.

3 Marks

1. Define polyuria. Give two causes of polyuria.
2. Define oliguria. Give two causes of oliguria.
3. Mention two preservatives used for urine.
4. Draw a urinometer.

5. Mention two causes oof proteinuria.
6. What is glucosuria. Give two causes of glucosuria.
7. What are the ketone bodies?
8. What is ketonuria. Give two causes of ketonuria.
9. Write in brief about Hay's test.
10. Write in brief about wet mount preparation.

UNIT –XVIII – SEMEN ANALYSIS

6 Marks

1. Describe the sample collection and precautions to be followed in seminal fluid collection.
2. Describe the procedure of semen analysis.

3 Marks

1. Write in brief about composition of seminal fluid.
2. Define oligospermia.
3. Define ozoospermia.
4. Draw and label a structure of normal sperm.

PAPER 7 – INTRODUCTION & PRINCIPLES OF OPERATION THEATRE MANAGEMENT

UNIT-1 BIO PHYSICS

3 MARKS

1. Mention 3 gas laws applied in ANAESTHESIA?
2. Define Bernoulli's principle?
3. Define venturi principle?
4. Mention the application of venturiprinciple?
5. Define diffusion?
6. What is meant by critical temperature?
7. Define Boyle's law and its applied aspects?
8. Define Charles law and its practical aspects?

UNIT-2 THEATRE ORGANIZATION

10 Marks

1. Define Sterilization, classify it. Describe about the principles, advantages of moist heat sterilization in detail.
2. What is chemical sterilization? Discuss its classification and some common agents used in hospital setup.
3. Explain in detail about the functional flow of a CSSD.
4. Explain briefly about the steps involved in maintenance of theatre asepsis for the effective functioning of operating room.

6 Marks

1. Discuss about theadvantages and disadvantages of E-o sterilization.
2. Describe the operation theatre air condition system how laminar flow reduces the incidence of infection.
3. Describe some factors affecting the efficacy of disinfection& sterilization.
4. Explain briefly about the fumigation &carbolization methods in operating room.
5. Mention the advantages and disadvantages of autoclave.
6. Discuss about the aldehydes as a disinfectants.
7. Mention the clinical use of chemical disinfectant used in hospital setup.
8. Define the role of theatre technician in monitoring safety of OT.
9. What are the available percentages of betadine solution? Mention its clinical uses.
10. What are the composition of surgical spirit,cidex? Mention its clinical uses
11. Discuss the occupational hazards for health workers in operation theatre and advocate prophylactic measures.
12. Define suture materials? Write about the types of sutures with examples?
13. Explain about the types of access zones in OT?

3 Marks

1. What are the biological indicators of effective sterilization?
2. Write about Categories of people working in operating theatre.
3. Name some parameters to be monitored in autoclaving.
4. Define sterilization?
5. What is antisepsis?
6. Mention the sterilization control used in autoclave & shelf life of items.
7. What are the drawbacks of Eo-sterilization?
8. What is the shelf life of items sterilized by autoclave &Eo-sterilization?
9. What are the chemical indicators?
10. What are steps will be you take if indicators fail?
11. What is the use of bowie-dick strips in sterilization?
12. Distinguish dry heat and moist heat sterilization.

13. Define CSSD?
14. Mention the importance of instrument inspection and checking in the packing?
15. How will you sterilize heat labile instrument?
16. How will you check the sterility of instrument?
17. Define operating department?
18. Define disinfection with examples?
19. Mention the uses of suture materials?
20. List out the various packaging material for sterilization .

UNIT -3 INFECTION CONTROL

10 Marks

1. Write in detail about universal safety precaution.
2. What is Nosocomial infection .Explain its causes precaution measures and treatment?
3. What are the steps involved in disinfection of HIV, HBV contaminated devices?

6 Marks

1. Mention the personal protective equipment and describe the role in infection control?
2. How laminar flow reduces the incidence of infections?
3. What are the steps involved in surgical hand wash?
4. What are the precautions to be taken for prevention of hospital acquired infection?
5. What are the steps for the decontamination of suction apparatus?
6. What is the precaution techniques involved in handling serology positive patients?
7. What are the precaution techniques in the protection of personnel working in operating theatre?
8. Explain the steps involved in management of blood & body fluid spillage.
9. Write about the classification of equipment in the operating room.
10. What are the precaution techniques in handling sharps?
11. Describe briefly about the types of hand washing?
12. Mention the 5 main infection control manoeuvres to control transmission?
13. What are the general principles to be followed in the high risk areas?
14. Discuss about post exposures prophylaxis of hepatitis & HIV disease?

3 Marks

1. Define concurrent infection?
2. Define terminal infection?
3. Define droplet infection?
4. Mention the special care for sharp instrument?
5. What are the causes of cross infection?
6. Mention the steps of surgical hand wash?
7. How will you dispose waste sharps?
8. Define Nosocomial infection?
9. Mention any 2 preventive measures to avoid nosocomial infection?
10. What is meant by high level disinfection?
11. Mention the importance of hand hygiene?
12. What are the stages of decontamination?
13. Mention any2 universal safety precautions?
14. Mentions do’s and don’ts of needle stick injury?
15. Expand the following: - NABH,ICN, ICC, JCI
16. Mention the types of hand wash.
17. Mention the principles of aseptic techniques?

UNIT 4-BIOMEDICAL WASTE MANAGEMENT

6 Marks

1. Define biomedical waste? Classify hospital waste?
2. Describe about the steps of biomedical waste management.
3. Write in detail about hospital waste segregation.

UNIT 5- PATIENT AND STAFF SAFETY

3 Marks

1. Define adverse drug reactions?
2. Define High risk medication?
3. Define -documentation & its purposes?
4. Define Medication errors?
5. Name any 2 look alike drugs? With color coding?
6. Name any 2 sound alike drugs? With color coding?
7. Name any 4 high risk medications? With color coding?
8. Mention the types of medication errors?
9. Write about the narcotic handling techniques inside the OT?
10. Mention the types of communication?

UNIT 6-TRANSPORT MEDICINE

6 Marks

1. Mention the goals of first aid? What are the tools of first aid kit?
2. Discuss briefly about the primary survey of trauma patient.
3. Types of patient transport ambulance.
4. Mention the equipments used for spinal immobilization .
5. List out the common emergency codes followed in hospital.
6. List out the emergency drugs in crash cart – one indications of each.

UNIT 7- MEDICAL, LEGAL & ETHICAL ISSUES

6 Marks

1. Explain in detail about the informed consent.
2. Explain in detail about the types of consent followed in the hospital.
3. Write about Therapeutic misadventure& Professional negligence
4. Explain briefly about the four major principles of medical ethics?
5. Mention the duties & responsibilities of physician in general?
6. What are the major three reasons for need of confidentiality?
7. What are the importance of medical ethics ?
8. What do you mean by euthanasia & mention the kinds of euthanasia .

3 Marks

1. Professional secrecy.
2. Define medical malpractice?
3. What is meant by medical negligence?
4. Mention the 3 common types of malpractice?
5. Mention the importance of informed consent?
6. What do you meant by patient's right?
7. What is meant confidentiality?
8. Mention the duties owed by a medical practitioner?

UNIT 8- INVENTIONARY PROCEDURES

6 Marks

1. Explain briefly about the prevention of fire safety & electric hazards in OT.
2. Define inventory control & explain about the types of inventory.
3. Discuss in detail about the surgical safety checklist following inside the OT?

Flowchart of Store requisition process in operation theatre complex.

PAPER 8 - MEDICINE RELEVANT TO OPERATION THEATRE TECHNOLOGY TECHNICIAN

Unit 1

3 Mark

1. Grades of Dyspnea NYHA & MMRC
2. Name 4 causes for orthopnoea
3. Define & Grading of Clubbing
4. Causes of Clubbing (Respiratory & Non respiratory)
5. Define Cyanosis
6. Causes of Central & Peripheral Cyanosis
7. Causes of pitting &Non-Pitting pedal oedema
8. Types of Jaundice
9. 4 causes of Haemolytic Jaundice
10. 4 causes of obstructive Jaundice
11. 4 causes of Hepatic Jaundice
12. Causes of Microcytic Hypochromic anemia
13. Causes of Macrocytic anemia
14. Define Cough
15. Grade Haemoptysis
16. How to calculate BMI??
17. Define Generalised Lymphadenopathy
18. Define pulse.
19. Define Pulsus paradoxus
20. Define pulse pressure
21. How to calculate MAP (mean arterial pressure)
22. Other uses of Sphygmomanometer (other than checking BP)
23. Secondary causes of Hypertension
24. Classify Hypertension
25. Waveforms of JVP & Correlate with Cardiac cycle
26. Define PUO (Pyrexia of Unknown origin)
27. Types of fever
28. Causes for Fever with Bradycardia
29. Causes of Tachypnoea
30. Causes of Bradypnea.

GENETICS

6 Mark

1. Write a short note on chromosomes.
2. Discuss the various types of chromosomal aberrations.
3. Describe Mongolism (Down's syndrome).
4. Briefly outline the clinical features, diagnosis, complications and management of Klinefelter’s syndrome.
5. Discuss briefly about Turner's syndrome.
6. Discuss the prevention of genetic diseases& add a note on genetic counseling

3 Mark

1. Name 4 examples for autosomal dominant inherited diseases
2. Name 4 examples for autosomal recessive inherited diseases
3. Name 4 examples for X linked recessive inherited diseases
4. Name 4 examples for mitochondrial disorders
5. Name 4 chromosomal disorders

MUSCULOSKELETAL SYSTEM

10 Mark

1. Discuss the clinical manifestations, diagnosis and management of rheumatoid

arthritis.
2. Discuss the classification, clinical manifestations, diagnosis and management of Sjogren'ssyndrome
3. Discuss the clinical manifestations, diagnosis and management ofankylosing spondylitis
4. Discuss the clinical features, diagnosis and management of reactive arthritis.
5. Discuss the clinical manifestations, diagnosis and management of systemic lupus erythematosus (SLE).
6. Describe antiphospholipid antibody (APLA) syndrome
7. Discuss briefly symptoms, diagnosis and treatment of Behcet's disease.
8. Discuss the clinical manifestations, diagnosis and management of systemic sclerosis.
9. Write briefly on clinical features, diagnosis and treatment of Wegener's granulomatosis or granulomatosis with polyangiitis.
10. Discuss the etiology, clinical manifestations, diagnosis and management of gout.

6 Mark
1. Add a note on Extra-articular manifestations of Rheumatoid Arthritis
2. Add a note on Disease Modifying Anti Rheumatoid Drugs
3. Write a short note on Reiter's syndrome.
4. List down the various autoantibodies in systemic lupus erythematosus (SLE).
5. Diagnostic criteria for SLE & add a note on treatment
6. What is Henoch-Schoenlein purpura?
7. What is Catastrophic APLA?
8. Write a short note on scleroderma.
9. Write a brief note on polymyalgia rheumatica.
10. Explain temporal arteritis, cranial arteritis or giant cell arteritis.
11. Discuss the clinical features, diagnosis and management of classic polyarteritis nodosa (PAN).
12. Describe microscopic polyangiitis.
13. Discuss Churg-Strauss syndrome.
14. Define and classify vasculitis.
15. Fibromyalgia. Definition. Diagnostic Criteria, Investigations & treatment

3 Marks
1. Felty syndrome
2. Caplans syndrome
3. What are Clutton's joints?
4. Name 4 drugs causing Drug induced Lupus reaction.
5. Name 4 conditions with positive ANA (Anti-Nuclear Antibodies
6. CREST syndrome

UNIT 2
NERVOUS SYSTEM
10 Marks
1. Define Status Epilepticus. Describe the clinical features and management in detail.
2. Neurogenic Bladder- Types, Clinical Features and Treatment.
3. Migraine- types, Pathophysiology, clinical features and management.
4. Epilepsy- Definition, types of seizures, management
5. Multiple Sclerosis- definition, pathophysiology, clinical features and management.
6. Parkinson’s Disease- pathophysiology, Clinical features, investigations and management.
7. Motor Neuron Disease- Definition, onset, types and clinical features, investigations and management.
8. Bacterial Meningitis- Causes, pathophysiology, clinical features, investigations, management.

9. Tetanus- etiology, pathophysiology, clinical features, investigation and management.
10. Myasthenia Gravis- pathophysiology, clinical features, investigations and management.
11. Stroke – types, risk factors, clinical features, investigation and management.
12. Subarachnoid hemorrhage- causes, clinical features, investigations and management.

6 Marks

1. Write a short note on generation and transmission of nervous impulses.
2. Name the different lobes of the brain and enlist the cortical lobar functions of each.
3. Differentiate between upper motor neuron and lower motor neuron muscle weakness.
4. Write a short note on the modalities to investigate neurological disease.
5. Write a short note on EEG.
6. Elucidate the CSF findings in bacterial and viral meningitis.
7. Write a short note on CSF findings in TB meningitis.
8. How do you differentiate seizure from syncope- list 5 points?
9. Glasgow Coma Scale.
10. What are the tests for confirming brain death?
11. Bell's Palsy- etiology, clinical features and treatment.
12. Define tremors. Write a short note on the different type of tremors.
13. Describe pyramidal and extrapyramidal gait.
14. What is dysarthria? Explain the different types and their sites of lesions.
15. Causes and differentiating features of bulbar and pseudobulbar palsy.
16. Write a short note on Tension type headache.
17. What is cluster headache? Clinical features and management.
18. Causes of focal seizures.
19. Write a short note on Neuromyelitis Optica.
20. List the causes for Parkinsonism.
21. Huntington's disease- clinical features, investigations and management.
22. Viral encephalitis – etiology, pathophysiology, clinical features and management.
23. Rabies- etiology, clinical features and management.
24. Poliomyelitis- etiology, pathophysiology, clinical features and management.
25. Herpes Zoster- clinical features and management.
26. Neurosyphilis – clinical features and management.
27. Botulism- etiopathogenesis, clinical features and management.
28. Clinical features and management of raised intracranial tension.
29. Write a short note on neurofibromatosis 1 and 2.
30. What is idiopathic intracranial hypertension? Clinical features and management.
31. What is Guillain Barre Syndrome? - clinical features and management.
32. Clinical features of cerebral venous thrombosis.

3 Marks

1. Name 4 neurological emergencies.
2. What is Wallenberg syndrome.
3. What is Weber syndrome.
4. What are the contraindications to lumbar puncture?
5. Name 4 cause of primary headache syndromes.
6. Name 4 secondary causes of headache.
7. What is trigeminal neuralgia?
8. What are pseudo seizures?
9. Name 4 causes of coma.
10. Define brain death.
11. What is locked-in syndrome?
12. What is glove-and-stocking neuropathy?

13. Name two hypokinetic and 2 hyperkinetic disorders.
14. What are essential tremors?
15. Define chorea. Name 2 causes.
16. Define athetosis.
17. Define Ballism.
18. What is dystonia. Name some types.
19. What are tics? Name 2 causes.
20. What is myoclonus? Name 2 types.
21. What is foot drop?
22. What is diplopia? Name 2 causes.
23. What is nystagmus. Name 2 causes
24. Name 4 causes of ptosis.
25. What is Horner's syndrome?
26. What is Argyll- Robertson pupil?
27. What is Marcus Gunn pupil?
28. What is Hoover's sign?
29. What is SUNCT?
30. Name 4 trigger factors for seizures.
31. What are myoclonic seizures?
32. What are atonic seizures?
33. What is narcolepsy?
34. Name some disease modifying drugs used in Multiple sclerosis.
35. Name 4 complications of multiple sclerosis.
36. Name 4 paraneoplastic disorders of the Central nervous system.
37. What is progressive supranuclear palsy?
38. Name 4 causes of acquired ataxia.
39. What is subacute sclerosing panencephalitis?
40. What is Creutzfeldt-Jacob disease?
41. Name 4 causes for raised ICT
42. What is normal pressure hydrocephalus?
43. Name 4 cause of polyneuropathies.
44. Name 4 vitamin deficiencies that can cause neuropathy.
45. Name 4 inherited muscular dystrophies.
46. Name 4 causes of acquired proximal myopathy.
47. Name 4 channelopathies.
48. Name 4 causes and 4 predisposing conditions for cerebral venous thrombosis.

ENDOCRINE SYSTEM & REPRODUCTIVE SYSTEM:
10 Marks

1. What is Normal Thyroid Profile? Discuss causes and treatment of hypothyroidism? Discuss causes and treatment of hyperthyroidism.
2. Classification of diabetes mellitus? Discuss the evaluation of diabetes in young?
3. Classification and mechanism of action of Oral HypoglycemicAgents?
4. Explain in detail on causes, clinical features, investigations,management, complications of diabetic ketoacidosis?
5. Explain in detail about Acromegaly? Discuss causes,investigations, management and note on complications of untreated acromegaly?
6. Explain in detail about Gynecomastia. Discuss causes,grading, evaluation and management?
7. Explain about Apancreatic diabetic mellitus. Discusscauses, clinical features and management?
8. Explain in detail about Anti thyroid drugs classification, mechanism of action, side effects?
9. Explain in detail on Metabolic syndrome –X diagnostic criteria,complications,management?
10. Explain in detail about Pheochromocytoma?Discuss causes, clinical features and treatment?
11. Explain in detail on Cushing's syndrome? Discuss clinical features and treatment?

12. Explain in detail on Hypoparathyroidism?Discuss causes, evaluation and treatment?
13. Explain in detail on Hyperparathyroidism? Discuss causes, evaluation and treatment?

6 Marks

1. Write short note on types of insulin?
2. How to differentiate between Diabetes Insipidus (cranial) from nephrogenic cause?
3. Write short note on Eye signs of thyrotoxicosis?
4. Write short note on Evaluation of hyperthyroidism?
5. Write short note on clinical features and treatment of Cretinism?
6. Write short note on clinical features and treatment of Myxedema?
7. Discuss causes of Diabetes insipidus?
8. Discuss features of Acromegaly?
9. Write short note on MEN Syndrome?
10. Write short note on gestational diabetes mellitus and its management?
11. Write short note on Addison'sdisease?
12. Write short note on Conns disease?
13. Write short note on Diagnostic criteria for diabetes mellitus?
14. Write short note on Management of adrenal crisis?
15. Explain clinical features,investigations, treatment of Cushing'ssyndrome?

3 Marks

1. Mention four clinical features of carcinoid syndrome?
2. Enumerate four complications of diabetes mellitus?
3. Mention four causes of gynecomastia?
4. Mention four causes of hypercalcemia?
5. Mention four causes of Infertility?
6. Classify thyroid disease?
7. Management of severe hypocalcemia?
8. Mention four causes of secondary amenorrhea?
9. Mention four eye signs in thyroiddisease?
10. Compare features of hypothyroidism and hyperthyroidism?
11. Explain in brief about Graves ophthalmopathy?
12. Mention Anomalies seen in uncontrolled type 2 diabetes mellitus mother during pregnancy?
13. Mention indications of starting insulin?

UNIT 3 - CARDIOVASCULAR SYSTEM

10 Marks

1. Describe the pathophysiology, clinical features and management of heart failure.
2. Describe in detail the etiology, pathogenesis, clinical features and treatment of acute rheumatic fever.
3. Describe the etiology, clinical features, diagnosis and treatment of infective endocarditis.
4. Describe the etiology, clinical features, diagnosis and management of acute coronary syndrome.
5. Define hypertension. What is pre-hypertension? What are the complications of hypertension?

6 Marks

1.Describe the coronary circulation and draw a diagram.
2.Describe the risk factors for the development of Ischemic heart disease.
3. Describe the clinical features of heart failure.
4.Jones criteria - Enumerate the major & minor criteria
5. Clinical features of infective endocarditis.
6. Dukes criteria.

7. Clinical presentation of acute coronary syndrome.
8. Risk factors for development of hypertension.
9. Enumerate measures to prevent the Coronary heart disease.

3 Marks
1. Four causes of edema of feet.
2. Four causes of palpitation.
3. Four causes of tachycardia.
4. Four causes of bradycardia.
5. ECG changes in acute myocardial infarction.
6. Four drugs used in cardiac failure.
7. Secondary prophylaxis of rheumatic fever.
8. Four Drugs used in the treatment of acute coronary syndrome.
9. Enumerate four antihypertensives.
10. Four congenital heart diseases.
11. Define cardiomyopathy.
12. What is pericardial effusion and pericarditis.
13. What is lymphoedema.

RESPIRATORY SYSTEM

10 Marks
1. Define asthma. Discuss the epidemiology, pathophysiology, clinical features and management of asthma
2. Define COPD. Discuss the epidemiology, pathophysiology, clinical features and management of COPD
3. Define bronchiectasis. Discuss the epidemiology, pathophysiology, clinical features and management of Bronchiectasis
4. Define community acquired pneumonia. Discuss factors that predispose the patient to pneumonia, the clinical features, investigations and management of pneumonia
5. Discuss the epidemiology, pathogenesis, clinical features, investigations and management of Pulmonary TB
6. What is Idiopathic Pulmonary Fibrosis? What are the clinical features, investigations and management of IPF?

6 Marks
1. Discuss management of acute severe asthma
2. Discuss the management of acute exacerbations of COPD
3. Discuss CURB-65 score. How does it aid in the management of Pneumonia?
4. Explain in brief about DOTS therapy
5. Extra pulmonary tuberculosis
6. Differentiate primary from post primary TB
7. Differentiate obstructive from restrictive lung disease
8. What is asbestosis? What are the clinical features and management of asbestosis?
9. What is pneumothorax? Mention the clinical features and management of tension pneumothorax.

3 Marks
1. Mention 4 causes of Acute dyspnea
2. Mention 4 causes of Chronic dyspnea
3. Mention 4 causes of chronic cough
4. Define orthopnea and Paroxysmal Nocturnal Dyspnea
5. Mention 4 causes of Hemoptysis
6. Mention 4 causes of exudative pleural effusion
7. Define Lights criteria
8. Mention 4 indications for lung transplantation
9. Give 2 indications for long term oxygen therapy

10. Define BODE index
11. Give 2 indications for noninvasive ventilation
12. Mention 4 complications of pneumonia
13. Mention 4 organisms implicated in the development of pneumonia
14. Name 4 antibiotics that can be used in community acquired pneumonia
15. Name any 4 drugs used in the treatment of tuberculosis
16. List 2 important adverse effects of isoniazid
17. List 2 important side effects of pyrazinamide
18. List 2 side effects of streptomycin
19. What is Mantoux test?
20. What the histological types of bronchial carcinoma?
21. Mention 2 causes of upper lobe fibrosis
22. Mention 2 causes of lower lobe fibrosis

INTEGUMENTARY SYSTEM

10 Marks

1. What is psoriasis? Discuss the aetiology, clinical features and management.

6 Marks

1. Clinical features and management of acne vulgaris
2. Clinical features and management of tinea.
3. Clinical features and management of scabies.
4. Clinical features and management of basal cell carcinoma
5. Clinical features and management of squamous cell carcinoma
6. Clinical features and management of malignant melanoma.
7. Write a short note on Steven Johnson syndrome.

3 Marks

1. What is a macule?
2. What is a papule?
3. What is a bulla?
4. What is a vesicle?
5. What is purpura?
6. What is petechiae?
7. Mention 4 functions of skin
8. What is diascopy?
9. ABCDE features of malignant melanoma
10. 4 causes of pruritus
11. 4 causes of urticaria
12. 2 causes of acquired blisters
13. 2 causes of leg ulceration
14. 4 causes of alopecia
15. 2 causes of eczema
16. What is koilonychia?
17. What is clubbing?
18. Mention 4 causes of clubbing
19. Name 2 premalignant skin lesions
20. Name the common skin malignancies
21. 2 causes of erythema nodosum
22. 2 causes of erythema multiforme
23. What is acanthosis nigricans?
24. What is TEN?

BLOOD, IMMUNE AND LYMPHATIC SYSTEM

10 Marks

1. What is primary and secondary hemostasis? Describe the extrinsic and intrinsic pathways of coagulation.

2. Classify the common causes of anemia. Discuss the etiopathogenesis, clinical features and management of iron deficiency anemia.
3. What are hemoglobinopathies? Discuss the clinical features and management of thalassemia.
4. What are hemoglobinopathies? Discuss the clinical features and management of sickle cell anemia.

6 Marks

1. Mention the clinical features of anemia.
2. How to differentiate bleeding due to abnormal platelets and that due to abnormal coagulation cascade?
3. Describe the role of vitamin K in clotting and the mechanism of action of Vitamin K.
4. Discuss the causes of splenomegaly.
5. Discuss the causes of thrombocytopenia and its evaluation.
6. What are the causes of unilateral leg swelling? Discuss about etiopathogenesis and treatment of DVT.
7. What are the indications for blood transfusion and what are the precautions to be taken?
8. What are the indications for FFP transfusion?
9. How do you investigate and manage reactions to blood products?
10. What are the causes of megaloblastic anemia and discuss its management?
11. What are the causes of hemolyticanemias? What are the clinical features and how will you evaluate?
12. Classify leukemias. Discuss the clinical features of acute leukemias.
13. Clinical features of CML and its management.
14. How will you classify lymphomas? What are the clinical features of Hodgkin's lymphoma and write a note on its management?
15. Classify myeloproliferative disorders.
16. How will you diagnose and manage a case of Hemophilia A?

3 Marks

1. Name the two major patterns of bleeding.
2. 4 causes of generalized lymphadenopathy.
3. What is external Waldeyer's ring?
4. What is internal Waldeyer's ring?
5. What are the different groups of lymph nodes in the neck?
6. What are the sites of hematopoiesis in the fetus and in adults?
7. What are stem cells?
8. What are the different granulocytes?
9. Mention the maturation pathway of red cells.
10. Mention 4 causes of neutrophilia.
11. Mention 4 causes of eosinophilia.
12. Mention 4 causes of basophilia.
13. Mention 4 causes of monocytosis.
14. Mention 4 causes of lymphocytois.
15. Mention 4 causes of lymphopenia.
16. 2 causes for microcytosis
17. 2 causes for macrocytosis
18. 2 causes of basophilic stippling
19. 2 causes of target cells
20. 2 causes of polychromasia
21. What are the normal values of platelet count, BT, CT, prothrombin time & APTT?
22. 4 causes of thrombophilia
23. How will you classify anemia based on MCV?
24. 2 causes of high hemoglobin/polycythemia

25. 4 causes of leukopenia
26. 4 causes of leukocytosis
27. Mention 2 causes of thrombocytosis
28. 4 causes of pancytopenia
29. Mention 4 causes of anemia of chronic disease

INFECTIOUS DISEASES

10 Marks

1. Describe the etiopathogenesis, clinical features, complications and management of malaria.
2. Discuss the etiopathogenesis, clinical features, management and complications of dengue fever.

6 Marks

1. What is PUO? Discuss the common causes of PUO.
2. Clinical features and management of leptospirosis.
3. What are the clinical features of varicella zoster and herpes zoster? How will you manage?
4. What are the common causes of acute watery diarrhea and outline its general management?
5. What are the common causes of acute bloody diarrhea and outline its general management?
6. Discuss the etiopathogenesis and management of enteric fever.
7. Mention common rickettsial infections. Discuss the clinical features and management of scrub typhus.
8. Clinical features and treatment of amoebiasis.
9. Clinical features and treatment of diphtheria
10. What are the common helminthiases? Discuss briefly about hookworm infestation.
11. Discuss the clinical features and management of filariasis.
12. Classification and clinical features of leprosy. Write briefly about management
13. What is syphilis? What are the stages of syphilis? Discuss the management.
14. Mention the common AIDS defining conditions
15. Mention the correlation between CD4 count and HIV associated diseases
16. Discuss the prevention measures of HIV transmission
17. Discuss about Post exposure prophylaxis
18. Discuss the management of HIV infection

3 Marks

1. 5 species of plasmodium
2. 2 complications of typhoid
3. 4 complications of malaria
4. 2 drugs used to treat enteric fever
5. Dose of chloroquine for malaria
6. Mention 2 ACT used in malaria treatment
7. Drugs used for radical cure in malaria
8. 2 causes of viral hemorrhagic fever
9. Lab tests for diagnosis of enteric fever
10. Lab tests for diagnosis of malaria
11. What are lepra reactions?
12. Mention 2 serological tests for syphilis.
13. Mention 4 HIV related gastrointestinal disorders
14. Mention 4 HIV related pulmonary disease
15. Treatment of PCP pneumonia
16. Mention 4 HIV related disorders of nervous system
17. Name 2 NRTIs
18. Name 2 NNRTIs

19. Name 2 protease inhibitors
20. Mention 2 combination treatments for HIV infections

UNIT 4
DIGESTIVE SYSTEM
10 Marks
1. Discuss the etiology of upper gastrointestinal hemorrhage and its management.
2. Discuss the etiopathogenesis, clinical features, management and complications of peptic ulcer disease.
3. What are inflammatory bowel diseases. Compare and contrast the pathology, clinical features and complications of Crohn's disease and ulcerative colitis.
4. Discuss the etiopathogenesis, clinical features, management and complications of cirrhosis of liver
5. Discuss the etiology of viral hepatitis. Write about the Hepatitis B infection, investigations and management and prevention of the same.

6 Marks
1. Discuss the indications for upper gastrointestinal endoscopy.
2. Discuss the indications for colonoscopy.
3. Discuss the causes of dysphagia and its evaluation.
4. Discuss the causes of dyspepsia and its evaluation.
5. Discuss about the causes of lower gastrointestinal bleeding.
6. Mention the causes of acute abdomen
7. Discuss about Barrett's esophagus
8. Discuss the clinical features and management of achalasia of the esophagus.
9. Mention few malabsorption syndromes. Discuss briefly about celiac disease and tropical sprue.
10. Discuss the etiopathogenesis and clinical features of acute pancreatitis.
11. Write briefly on irritable bowel syndrome.
12. Discuss the common liver function tests.
13. How will you differentiate clinically and biochemically the different types of jaundice?
14. Discuss the etiopathogenesis and clinical features of acute liver failure.
15. Write about Child Pugh classification of prognosis in cirrhosis
16. Discuss the classification of portal hypertension and causes of each.
17. Discuss the complications of cirrhosis of liver
18. Discuss about the management of variceal bleeding
19. Discuss the common causes of ascites. Write briefly on SAAG and its use.
20. Discuss the clinical features and management of hepatic encephalopathy
21. What are the pathological features of alcoholic liver disease?
22. Write about the clinical syndromes of alcoholic liver disease.
23. Discuss briefly about Wilson's disease.
24. Discuss the causes of liver abscess and write about the management of amoebic liver abscess.
25. Describe briefly the clinical features and complications of gall stones.
26. Discuss the clinical features and management of acute cholecystitis.

3 Marks
1. Mention 4 causes for oral ulcers
2. Mention the organism causing Whipple's disease and one drug used to treat the same.
3. Mention 4 complications of acute pancreatitis
4. 2 complications of chronic pancreatitis
5. 2 investigations for diagnosis of acute pancreatitis
6. Mention 4 common causes of hepatitis
7. Mention 4 common causes of cirrhosis

8. 4 causes of cholestatic jaundice
9. Mention 2 congenital non-hemolytic hyperbilirubinemia
10. 2 specific clinical features of cholestatic jaundice
11. 4 complications of acute liver failure
12. 4 complications of cirrhosis
13. 2 drugs used in treatment of hepatic encephalopathy
14. 2 complications of portal hypertension
15. How to diagnose SBP?
16. 4 factors precipitating hepatic encephalopathy.
17. Name 4 hepatotoxic drugs.
18. 4 causes of fatty liver
19. 2 autoantibodies associated with autoimmune hepatitis
20. 2 clinical features of hemochromatosis
21. Mention 4 risk factors for cholesterol gall stones

URINARY SYSTEM

10 Marks

1. Discuss briefly about the causes, clinical features and management of acute renal failure.
2. Discuss briefly about the causes, pathogenesis, clinical features and management of nephrotic syndrome.
3. Discuss the etiology, clinical features and management of chronic kidney disease.
4. Discuss the etiology, pathogenesis, clinical features and management of poststreptococcal glomerulonephritis.

6 Marks

1. Write a short note on Juxtaglomerular apparatus.
2. Write a short note on polycystic kidney disease.
3. Write a brief note on nephritic syndrome.
4. What are the different types of renal replacement therapies available?
5. Write about hemodialysis.
6. What are the complications of CKD?
7. Write a short note on acute pyelonephritis.
8. Write a short note on chronic pyelonephritis.
9. Write a note on obstructive uropathy.
10. Classify diuretics with a neat labelled diagram showing their sites of action.
11. Describe the stages of CKD.
12. Write a note on acute tubular necrosis.

3 Marks

1. Draw a neat labelled diagram of a nephron.
2. What are the functions of the kidney?
3. Define azotemia.
4. Define uremia.
5. Define polyuria.
6. Mention 4 causes for polyuria.
7. Define anuria and oliguria.
8. Mention 4 causes of anuria.
9. Mention 4 causes of hematuria.
10. What is proteinuria?
11. Mention 4 causes of proteinuria.
12. What is glomerular filtration rate?
13. Give 4 causes for CKD.
14. Write 4 indications of emergency hemodialysis.
15. Mention 4 causes for anemia in CKD.
16. What is struvite stone.

17. Write 4 indications of renal biopsy.
18. What is asymptomatic bacteriuria?

EMERGENCY MEDICINE

10 Marks

1. Definition Clinical feature, Etiology, Diagnosis and management of Septic shock.
2. DKA – Definition, clinical feature and management

6 Marks

1. Short note on type 2 respiratory failure
2. Define ARDS and note on diagnosing criteria on ARDS
3. Define coma. Discuss causes and evaluation

3 Marks

1. Types of respiratory failure
2. Classification of shock
3. Define sepsis
4. Define septic shock
5. SIRS
6. Components of SOFA score
7. Define vegetative state
8. What are brain stem reflexes?
9. 4 causes of non-cardiac pulmonary edema

MEDICAL ETHICS

3 Marks

1. Informed consent form

UNIT 5

GERIATRICS

10 Marks

1. Osteoporosis - clinical feature, investigation and management
2. Fundamentals of Geriatrics care and add a note Fall in old age
3. Epidemiology Evaluation and management of Cognitive impairment and urinary incontinence in old age.

6 Marks

1. Delirium
2. Physiology of Ageing.
3. Nutritional disorder in Ageing
4. Methods used to prevent contracture
5. Osteoarthritis.

3 Marks

1. Define Aging
2. 4 causes of dementia in elderly
3. Name 5 evolutionary theory of aging
4. Bedsore grade
5. Rehabilitation
6. Vaccine in old age.

III YEAR
PAPER 9 - OPERATION THEATRE TECHNOLOGY - CLINICAL

UNIT 1: HISTORY OF ANAESTHESIA

10 MARKS

1. Explain about the breathing circuits and mapleson's circuit and components of closed system?
2. Explain about the epidural anesthesia? Needle? Techniques? Drugs? Factors affecting level? Advantages and dis advantages?
3. Explain about the perioperative complications of general anesthesia?
4. Explain about the contraindications of central neuraxial block?
5. Explain about the invasive and non-invasive monitoring?
6. Explain about the blood transfusion? Massive blood transfusion?
7. Explain about the blood component therapy? Complication of blood transfusion?
8. Explain about the anesthesia machine? Safety features of anesthesia machine?

6 MARKS

1. How will you check the anesthesia machine and circuit?
2. Explain about the safety features of anesthesia machine?
3. Explain about vaporizers? Scavenging system?
4. Explain about high pressure system in anesthesia machine?
5. Explain about the rotameter? With appropriate diagram?
6. Describe about oropharyngeal airway and nasopharyngeal airway? With diagram?
7. Write in detail about face masks and ambu bag? With diagram?
8. Explain about LMA? With diagram?
9. Explain about the endotracheal tube with diagram?
10. Explain about nasal intubation?
11. Explain about trachesotomy?indication?complication?types of tube?care for it?
12. Explain about the oxygen delivery in non-intubated patient?
13. Explain about advanced monitoring?
14. Explain about invasive monitoring?
15. Explain about non-invasive monitoring?
16. Explain in detail about capnography?
17. Explain about the intraoperative fluid management?
18. Explain about autologous blood transfusion?
19. Explain about the stages of general anesthesia?
20. Explain about the systemic effects of inhalational agents? Side effects? Toxicity?
21. Write about the pharmacodyanmics, pharmacokinetics, uses and adverse effects of n20?
22. Write about the pharmacodyanmics, pharmacokinetics, uses and adverse effects of halothene?
23. Write about the pharmacodyanmics, pharmacokinetics, uses and adverse effects of isoflurane?
24. Write about the pharmacodyanmics, pharmacokinetics, uses and adverse effects of desflurane?
25. Write about the pharmacodyanmics, pharmacokinetics, uses and adverse effects of sevoflurane?
26. Define hypoxia ? Explain about the types of hypoxia? Oxygen toxicity?
27. Explain about the pharmacology of thiopentone sodium?
28. Explain abput the pharmacology of propofol?
29. Explain about the of ketamine?
30. Explain about the classification of opiods?
31. Explain about the pharmacodynamics of opiods?
32. Explain about the depolarizing muscle relaxants?

33. Explain about the non-depolarizing muscle relaxants?
34. Explain about the reversal of block?drugsused?signs of adequate reversal? Common causes of inadequate reversal?
35. Explain about the local anesthesia?classification?explain in detail about any 2 drugs?
36. Explain about the pharmacodynamics, pharmacokinetics, uses and adverse effects of morphine?
37. Explain about blocks of upper limb?
38. Explain about the blocks of lower limb?
39. Explain about structures encountered during spinal anesthesia? Procedure? Complications?
40. Explain about the factors affecting the height of the block? Duration of block?

3 MARKS

1. Pulmonary function test?
2. Sodalime composition?
3. Compare PVC and red rubber?
4. What are the indications for one lung ventilation?
5. Mention the complications of double lumen tube?
6. Explain about extubation?
7. Mention about the complication at the time of extubation?
8. Mention the clinical monitoring during general anesthesia?
9. Explain about hypothermia?
10. Mention the composition of ringer lactate?
11. Mention the composition of plasmalyte?
12. Mention the composition of normal saline and DNS?
13. Explain about dextrans?
14. Explain about albumins?
15. Explain about gelatins?
16. Explain about hydroxyethyl starch?
17. What are the indications for FFP?
18. Explain about cryoprecipitate?
19. Explain about platelet concentration?
20. Explain about scavenging system?
21. Explain about combitube?
22. Double lumen tube with diagram?
23. Explain about RAE tube?
24. How will you check for correct position of ET tube?
25. Explain about the emergency infraglottic airway devices?
26. Mention the clinical signs during monitoring the depth of anesthesia?
27. Difference between colloids and crystalloids?
28. What are the components of general anesthesia?
29. What are the factors affecting the mac?
30. Explain the second gas effect?
31. Explain about entonox?
32. Explain about enflurane?
33. Mention the disadvantages of ether?
34. Explain the hyper baric oxygen toxicity?
35. Explain about the safe level of hyperbaric o2 and therapy schedule?
36. Write about etomidate?
37. Explain about tramadol?
38. Explain about remifentanil?
39. Explain about naloxone?
40. Explain about dexmedetomidine?
41. Mention the 2 rules of reversal?
42. What are the causes of failure of local anesthesia?
43. What are the causes of hypoventilation?

44. Write about pulmonary embolism?
45. Write about pulmonary edema?
46. Mention the causes of HTN?
47. What are the methods to prevent awareness?
48. Post-operative cognitive dysfunction?
49. Explain the treatment for PONV?
50. Hyperthermia
51. Shivering
52. Anaphylactic reaction
53. Mention the contraindication for peripheral nerve block?
54. Explain about CSE?
55. What are the levels of block required for common surgeries?

UNIT 2
6 MARKS
1. Explain about the premedication for general anesthesia?
2. Explain about the instruction related to modification in preexisting medical therapy?
3. Explain about the premedication for general anesthesia?
4. Explain about the instruction related to modification in preexisting medical therapy?
5. Explain about the midazolam?
6. Explain about metaclopramide?
7. Explain about antacids?
8. Explain about h2 blockers?
9. Explain about opioids?
10. Explain about anticholinergic drugs?
11. Explain about 5HT3 antagonist?
12. Explain about hyoscine?
13. What are the components of drug storage?
14. Explain about proper drugs storage?
15. Explain about the proper storage environment for drugs?
16. Explain about the storage and maintenance of drugs?
17. Explain about storage premises?
18. Explain about the arrangement of drugs on shelves?
19. Explain about the storeroom?
20. Explain about the dispensary?
21. Drug expiry?
22. Explain about the storage, maintenance and security?
23. Explain about controlled drug regulation?
24. Explain about the storage of controlled drugs?
25. Explain about the recording of controlled drug use?

UNIT 3
3 MARKS
1. Write about the various method for the calculation the drug?
2. Mention the formula for calculating the dose?
3. Mention the formula for calculating the concentration?
4. Mention the formula for calculating the flow rate?
5. Mention the formula for calculating the drip rate?
6. Explain about proportion method?
7. Explain about dimensional analysis?
8. What is safe dose?
9. What is the formula for body surface area?
10. Mention the formula for the pediatric drug calculation?
11. Explain about the sequential method?
12. Explain about random method?

13. Explain about percent and ratio strength?
14. Explain about temperature conversions?
15. Mention the formula for fluid theraphy?

UNIT 4
6 MARKS
1. Explain about the common hazards of medical devices?
2. Explain about the risks of exposure to electric current?
3. Explain about the physiological effects of electricity on the body?
4. Explain about electrical safety testing? Procedure?

UNIT 5
6 MARKS
1. Explain about the physical and accidental hazards in operation theatre?
2. Explain about the radiation hazards in OT?
3. Explain about accidental and chemical hazards in OT?
4. Explain about biological and fire hazards inOT ?
5. Explain about environmental hazards in OT?
6. Explain about catastrophic events in the operating room?
7. Explain about the types of injuries sustained by the staffs of operation theatre?
8. What are the emergency and disaster preparedness plan for operating theatre?
9. Explains about various types of hazards in OT?
10. Explain about the safety measures in OT to prevent hazards?
11. Explain about safety measures for operating room personnel?

3 MARKS
1. Write about physiological and atmospheric hazards in OT?
2. Mention the precautions for atmospheric hazards in OT?
3. How will you eliminate hazards in OT?
4. What are the conditions producing explosions?
5. Mention the accidents for operating room personnel?
6. Explain about radiation safety?
7. Explain about the hazards other fires and explosions?
8. What are the pre-caution that must be observed during 02 cylinder handling?
9. How will you use a fire extinguisher?
10. Mention the disadvantages of bipolar instruments?

UNIT 6
6 MARKS
1. Explain about the monopolar and bipolar instruments? Mention the advantages and disadvantages?
2. Explain about the electro surgical accidents?
3. Explain about the mechanism of laser? Types of lasers? Advantages and disadvantages?
4. Explain about monopolar and bipolar cautery?
5. Explain about ultrasonic devices?
6. Explain about argon beam coagulation? Advantages and disadvantages?

3 MARKS
1. Mention the energy sources used in OT?
2. Mention the types of electric instruments used in OT?
3. Mention the advantages of electrocutting?
4. Mention the complication of electrocutting?
5. Mention the advantages of bipolar instruments?
6. Mention the disadvantages of bipolar instruments?
7. Mention the advantages of monopolar instruments?
8. Mention the disadvantages of monopolar instruments?

9. Explain about ultrasonic dissector?
10. Explain about harmonic?

UNIT 7
10 MARKS
1. Explain about intravenous catheter insertion procedure?
2. Explain about administering medication by heparin lock?
3. Explain about the surgical preparation of skin?
4. Explain about intra atrial insertion? Equipments needed and care to be taken?
5. Explain about IV infusions? Complication? Assessment? Equipments?
6. Explain about surgical dressing?
7. Explain about suture removal?
8. Explain about ambulation? Early ambulation guide? Steps of amputation?
9. Explain about oxygen administration procedure? Considerations? Equipments nasal cannula method?
10. Explain about CPR?
11. Explain about ACLS?
12. Explain about artificial airway management?

6 MARKS
1. Explain about counting procedure?
2. Explain about sponge and sharp count?
3. Explain about naso gastric tube insertion?
4. Explain about enema?
5. Explain about endotracheal tube intubation?
6. Explain about endotracheal tube extubation?
7. Explain about endotracheal tube suctioning?
8. explain about tracheostomy suctioning?
9. Explain about pulmonary wedge pressure monitoring?
10. Explain about CVP monitoring?
11. Explain about pulse oximeter?factors affecting accuracy? Nursing consideration?
12. Explain about postrual drainage and chest physiotheraphy?

UNIT 8
6 MARKS
1. Explain about electro surgical apparatus?
2. Explain about the classification of surgical instruments?
3. Explain about the care of surgical instruments?
4. Explain about handling and caring of instruments?
5. Explain about handling of instruments during surgery?
6. Explain about handling of special instruments during surgery?

3MARKS
1. Explain aboutmayo’s stand?
2. Explain about basin stand?
3. Explain about kick bucket?
4. Explain about stools?
5. Explain about suction apparatus?
6. Explain about light source in OT?
7. Explain about cardiac arrest tray?
8. Draw the diagram of clamp and mention its parts?
9. Explain about the care for sharp instruments?
10. Explain about the care for micro surgical and ophthalmic instruments?
11. Explain about the care for air powered instruments?
12. Explain about the care for electrical instruments?
13. Mention the general consideration in the usage of linen?
14. What are the advantages of non-woven fabrics/ paper drapes?

PAPER 10- OPERATION THEATRE TECHNOLOGY - ADVANCED

UNIT 1: ABDOMINAL WALL SURGERY

6 MARKS

1. Explain about rectus sheath hematoma?
2. Explain about melengey's progressive post-operative synergistic gangrene?
3. Explain about fibromatosis?
4. Explain about blunt abdominal trauma – causes, investigation, mechanism?
5. Explain about the algorithm of investigation of bat?
6. Explain about liver injury?
7. Explain about small bowel injury?
8. Explain about renal injury?
9. Explain about general principles in a blunt injury abdomen?

3 MARKS

1. Simple cystic disease?
2. Abdominal wall veins?
3. Burst abdomen?
4. Divarication of recti?
5. Endometriosis of the abdominal wall ?
6. Management of liver injury?
7. Colonic injury?
8. Dudodenal injury?
9. Pancreatic injury?

UNIT 2: GASTROINSTESTINAL SURGERY

10 MARKS

1. Write about small bowel resection ? Explain about open resection , laparoscopic bowel resection?
2. write about the colectomy procedure? Colostomy procedure? Explain about esophagectomy techniques?
3. Explain about pancreatectomy purpose, procedure?

6 MARKS

1. Explain about hernia repair purpose procedure, surgical procedure?
2. Explain about appendectomy? Purpose? Traditional open appendectomy ?
3. Explain about gastric bypass? Procedure?Advantages?Disadvantages?
4. Explain about sleeve gastrectomy ?Procedure?Advantages?Disadvantages?
5. Explain about adjustable gastricband ?Procedure ?Advantages?Disadvantage?
6. Explain about biliopancreatic division with duodenal switch gastric bypass?

3 MARKS

1. Write about the advantages of gastric bypass?
2. Write about the disadvantages of gastric bypass?
3. Write about the advantages of sleeve gastrectomy?
4. Write about the disadvantages of sleeve gastrectomy?
5. Write about the advantages of adjustable gastric band?
6. Write about hemorrhoidectomy?
7. Explain about PPH?
8. Explain about J pouch?
9. Explain about minimally invasive esophagectomy?
10. Mention the complications of GI surgery?
11. Write about the disadvantages of adjustable gastric band?
12. Explain about the purpose of pancreatectomy?
13. What is liver resection?

14. What is liver transplantation and purpose of it?
15. What are the advantages of j pouch?

UNIT 3: SURGERY OF THE BILIARY SYSTEM, LIVER, PANCREAS, AND SPLEEN

10 MARKS

1. Explain about chronic pancreatitis?
2. Explain about carcinoma of the gall bladder?
3. Explain about carcinoma of the pancreas?
4. Explain about acute pancreatitis?
5. Explain about rupture of spleen?
6. Explain about hemolytic anemia?

6 MARKS

1. Explain about surgical anatomy of liver?
2. Explain about pyogenic liver abscess?
3. Explain about amebic liver abscess?
4. Explain about hydatid cyst of the liver?
5. Explain about hepatocellular carcinoma?
6. Explain about portal hypertension?
7. Explain about liver transplantation?
8. Explain about haemobilia?
9. Explain about cholelithiasis?
10. Explain about acute cholecystitis?
11. Explain about chronic cholecystitis?
12. Explain about laparoscopic cholecystitis?
13. Explain about surgical anatomy of pancreas?
14. Explain about choledochal cyst?
15. Explain about pseudocysts of pancreas?
16. Explain about congenital anomalies of the pancreas?
17. Explain about surgical anatomy of spleen?
18. Explain about ITP?
19. Explain about the condition which requires splenctomy procedure?

3 MARKS

1. Simple cystic disease?
2. Polycystic liver disease?
3. Budd- chiari syndrome?
4. Complication in the gall bladder?
5. Cholecystoses?
6. Mucocele?
7. Obstructive jaundice?
8. Sclerosing cholangitis?
9. Caroli disease?
10. Congenital biliary atresia?
11. Endocrine tumors of the pancreas?
12. Zollinger- ellison syndrome?
13. Glucagonoma?
14. Pancreatic fistula?
15. White bile?
16. Pancreatic ascites?
17. Function of spleen?
18. Congenital abnormalities?
19. Causes of spleen abscess?
20. Hairy cell leukaemia?
21. Benefits of splenectomy?
22. PSI

UNIT 4: BREAST SURGERY

6 MARKS

1. Explain about the breast biopsy, preparation of the patient, skin preparation, supplies, instruments, equipments needed?
2. Explain about the mastectomy?
3. Explain about the partial mastectomy procedure? Explain the preparation of patient skin preparation, draping, equipments, supplies needed?
4. Explain about the subcutaneous mastectomy procedure, and also explain about the preparation of patient draping, equipments and supplies needed?
5. Explain about the modified radical mastectomy, classical radical mastectomy procedure? Explain about the preparation of patient, draping, equipments and supplies needed?
6. Define sentinel node biopsy? Explain about the description, procedure, preparation of the patient?
7. Explain about the draping, equipments,instruments and supplies needed for sentinel node biopsy?

UNIT 5: THYROID GLAND SURGERY

6 MARKS

1. Write about simple goitre? Explain about the pathophysiology, diffuse hyperplaster goitre, diagnosis, investigations, complication and prevention?
2. Write about the toxic goitre? Explain about the clinical feature, diagnosis , treatment?
3. Write about the neoplasm of the thyroid?

3 MARKS

1. Write about the classification of the thyroid swelling?
2. Explain the pathophysiology of simple goitre?
3. Define thyrotoxicosis?
4. Write about anti-thyroid drug?
5. Write about diffuse toxic goitre?
6. Write about toxic nodule goitre?
7. Write about the clinical presentation of simple goitre?
8. Write about the post-operative complication of thyroid surgery?

UNIT 6

6 MARKS

1. Congenital anomalies of the female reproductive system
2. Correction of the infertility due to tubal abnormalities
3. Abnormal uterine bleeding
4. Pelvic organ prolapse and urinary incontinence
5. Urinary tract fistulas
6. Leiomyoma’s of the uterus
7. Adnexal masses
8. Ectopic pregnancy
9. Carcinoma of the vulva?
10. Carcinoma of the vagina
11. Carcinoma of the cervix
12. Carcinoma of the endometrium

3 MARKS

1. Duplication of the uterus
2. Contraception
3. Stages of endometriosis
4. Adenomyosis
5. Scarcoma of the uterus

6. Adenocarcinoma
7. Ovarian cancer’
8. Gestational trophoblastic disease

UNIT 7
6 MARKS
1. Write a short note on manual vacuum aspiration
2. Write a short note on episiotomy?
3. Write a short note on external cephalic version
4. Describe the conduct of vacuum delivery and its complications
5. Describe ventouse and write about the indications and contraindications of vacuum delivery
6. What are the indications for caesarean delivery?
7. What are the types of caesarean section? describe the steps of lower segment c delivery
8. Complications of caesarean delivery
9. Describe post-partum sterilization
10. Describe the different techniques of tubal ligation and laparoscopic method of sterilization
11. What are the indication, prerequisite for forceps delivery
12. What is hysterectomy? What are the different types of hysterectomy? Write the indications for hysterectomy
13. Discuss in detail about the operative procedure of abdominal hysterectomy and its complications
14. What is vaginal hysterectomy?Contra-indication? Explain about LAVH?
15. Write in detail about thesteps of vaginal hysterectomy and its complications
16. Discuss indications for dilation and curettage
17. Discuss procedural detail for d and c , its contraindication and complication
18. Discuss sequelae of D and C? write a note on asherman syndrome
19. Explain about fractional curettage
20. What is laparoscopic tube sterilization and laparoscopic surgeries for endometriosis
21. Describe laparoscopic surgeries for tubal ectopic gestation and laparoscopic hysterectomy
22. Explain about - lap myomectomy
laptubal recanalization
ovariandrilling
hysteroscopicsurgerie

UNIT 8
6 MARKS
1. Explain about carcinoma of penis?
2. Explain about the treatment of carcinoma of penis?
3. Explain about differential diagnosis of ulcer pain?
4. Explain about hydrocele?
5. Explain about undescended testis?
6. Explain about varicocele?
7. Explain about testicular tumor?
8. Explain about fournier gangrene?

3 MARKS
1. Scarcoma of the uterus
2. Adenocarcinoma
3. Ectopic testis?
4. Torsion testis?
5. Interstitial cell tumor?
6. Compare seminoma and teratoma?

7. Classification of germ cell tumors?

UNIT 9: SURGERY OF THE BLADDER AND URETERS AND KIDNEYS
6 MARKS
1. Explain about the most common urological surgical procedure?
2. Explain about the types of urological surgery?
3. Explain about the surgery to ureter?
4. Explain about the types of biopsy of the prostate?
5. Explain about prostatectomy? Explain about different types of TURP?
6. Explain about the types of renal stone?
7. Explain about the surgery to renal stone?
8. Explain about the amputation of penis?
9. Explain about renal transplantation?
10. Explain about the excision of bladder stone? With diagram?

PAPER 11 -OPERATION THEATRE TECHNOLOGY - ADVANCED

UNIT 1: SURGERY OF THE EAR
3MARKS
1. Otosclerosis
2. Otalgia
3. Acute mastoiditis
4. Management of foreign bodies in the ear
5. Mention the systemic disorders affecting the ear
6. Clinical assessment of dizzy patient?
7. Meniere's disease
8. Vestibular schwannoma
9. Labyrinthitis
10. Benign paroxysmal positioning vertigo
11. Gastric dysequilibrium

6 MARKS
1. Chronic otitis media
2. Sensorineural hearing loss
3. Acute otitis media
4. tinnitus
5. Temporal bone fracture
6. Neoplasms of the skull base
7. Congenital deformities of the ear

UNIT 2: SURGERY OF THE NASAL CAVITY, OROPHARYNX AND LARYNX
3 MARKS
1. Oral candidiasis
2. Herpetic stomatitis
3. White lesion of the oral cavity
4. Compare laryngotracheo bronchitis and supraglottis
5. Vocal nodule
6. Vocal cord paralysis
7. Laryngitis

6 MARKS
1. Explain about the facial nerve paralysis
2. Explain about nasal foreign bodies
3. Epistaxis
4. Nasal trauma

5. Congenital nasal formation
6. Congenital oral formation
7. Pharyngitis
8. Pharyngeal foreign bodies
9. Foreign bodies of larynx and tracheobronchial tree
10. Laryngeal trauma
11. Pediatric airway obstruction
12. Explain about aids in otolaryngology

UNIT 3: SURGERY OF THE NECK AND SALIVARY GLAND
6 MARKS
1. Explain about acute parotitis – clinical features, clinical manifestation, treatment?
2. Explain about surgical anatomy of the sub mandibular salivary gland?
3. Explain about the classification of salivary gland tumors?
4. Explain about the pleomorphic adenoma of parotid gland?
5. Explain about peripheral nerve repairs and transfers?

3 MARKS
1. Causes of acute parotitis?
2. Chronic submandibularsialadenitis?
3. Treatment of chronic submandibularsialadenitis?
4. Complication of chronic submandibular sialadenitis?
5. Adenolymphoma?
6. Mucoepidermoid tumor?
7. Complication of parotidectomy?
8. Frey syndrome?
9. Sjogren's syndrome?

UNIT 4: ORAL AND MAXOFACIAL SURGERY
6 MARKS
1. Leukoplakia- causes, stages, treatment?
2. General principles in the treatment of oral cancer?
3. Explain about the carcinoma of buccal mucosa?
4. Explain about the carcinoma of tongue?
5. Explain about the carcinoma of lip?
6. Explain about the carcinoma of maxillary antrum?
7. Explain about the differential diagnosis of ulcers in the tongue?

3 MARKS
1. Hyperkeratosis?
2. Leukoplakia?
3. Prophylactic neck dissection?
4. Complication of carcinoma of buccal mucosa?
5. Common symptoms and common sites of oral cancer?
6. Nasopharynx cancer
7. Mention the painful ulcers in the tongue?
8. Mention the painless ulcers in the tongue?
9. Macroglossia?
10. Odontome?
11. Dental cyst?
12. Dentigerous cyst?

UNIT 5: PLASTIC AND RECONSTRUCTIVE SURGERY.
6 MARKS
1. Explain about cleft lip surgery and dab?
2. Explain about squint's surgery and ptosis surgery?

3. Explain about nose, ear, TCA chemical peel surgery?
4. Explain about skin grafting?

3 MARKS
1. Define skin grafting?
2. Describe skin grafts?
3. Explain the different kind of skin graft?
4. What are the conditions required for a satisfactory “take”
5. Explain about free flaps?
6. Explain about types of pedicle flaps?
7. Explain about post-operative monitoring of free flaps?
8. Explain about pedicle flap?
9. Explain about flap?
10. Explain about free flap failure?

UNIT 6: ORTHOPEDIC SURGERY

6 MARKS
1. Explain about the types of orthopedic surgery?
2. Explain about the post-operative nursing care for orthopedic surgery?
3. Explain about the complication of orthopedic surgery?
4. Explain the surgical management of fracture?
5. Explain about the amputation?
6. Explain about the indication of orthopedic surgery?

3 MARKS
1. Define orthopedic surgery?
2. Explain the purpose of orthopedic surgery?
3. Mention any 4 indication for orthopedic surgery?
4. What are the types of orthopedic surgery?
5. Define total joint replacement?
6. Explain total knee replacement surgery?
7. Explain total hip replacement surgery?
8. Explain total shoulder replacement, ankle surgery and ACL reconstruction?
9. Explain rotator cuff repair surgery?
10. Explain orthoscopic surgery?
11. Explain about spine surgery?
12. Write about orthopedic anesthesia?

UNIT 7: PERIPHERAL VACULAR SURGERY

6 MARKS
1. Lowe limb ischemia- causes, sign and symptoms, investigation
2. Explain about the treatment of peripheral vascular disease?
3. Explain about the treatment of atherosclerotic disease?
4. Explain about the treatment of critical limb disease?
5. Popliteal aneurysm- causes, sign and symptoms, investigation, treatment?
6. Raynaud’s disease?
7. Gangrene?
8. Surgical anatomy of the venous system of leg?
9. Explain about the clinical examination of the varicosity of the leg?
10. Explain about the treatment of varicose vein
11. DVT

3 MARKS
1. Mention the cause of lower limb ischemia?
2. Explain about the collateral circulation?
3. Mention the clinical features of lower limb ischemia?
4. Mention the sign of lower limb ischemia?

5. Buerger's postural test?
6. Capillary refill test?
7. Critical limb ischemia?
8. Contraindication of thrombolytic theraphy?
9. Signs of acute limb ischemia?
10. Air embolism?
11. Fat embolism?
12. Frostbite?
13. Causes of upper limb ischemia?
14. Thoracic outlet syndrome – causes?
15. Axillary vein thrombosis?
16. Takayasu's arteritis?
17. Primary varicose vein?
18. Complication of varicose vein?
19. Pulmonary thromboembolism?

UNIT 8: THORACIC AND PULOMONARY SURGERY

10 MARKS

1. Explain about open/surgical chest drain and management of chest drain?
2. Define bronchoscopy? Explain about flexible and rigid bronchoscopy?
3. Explain about lobectomy?
4. Explain about lung transplantation?
5. Tracheobronchial cryotheraphy – patient preparation, patient selection, technique and post-operative?

6 MARKS

1. Explain about Endo-bronchial electro cautery?
2. Explain about balloon dilation of benign tracheobronchial stenosis?
3. Thoracoscopy – indication, contraindication, pre procedure, equipments, chest tube care?
4. Explain about posterolateral thoracotomy?
5. Explain about video assisted thoracoscopic surgery?
6. Percutaneous / sedinger chest drain?
7. Explain about cervical mediastinoscopy?
8. Explain about pneumonectomy?

3 MARKS

1. Anterior thoracotomy
2. Axillary thoracotomy
3. Transverse thoracotomy
4. Anterior mediastinotomy
5. Chest drains
6. Bronchoscopy
7. Sub lobar or wedge resection
8. Segmentectomy
9. Pleurodesis
10. Chemical pleurodesis
11. Surgical pleurodesis
12. Pleural abrasion
13. Pleurectomy
14. Decortication
15. Endobronchial biopsy
16. Tracheobronchial biopsy
17. Transbronchial fine needle aspiration
18. Contraindication to laser bronchoscopy
19. Silicone airway stents
20. Expandable Endobronchial stents

21. Chest tube placement – indication
22. Chest tube placement
23. Chest tube placement – contraindication
24. Complication of thoracoscopy
25. Patient preparation for chest tube placement
26. Contraindication of thoracoscopy
27. Complication of TOTT
28. Contraindication of TOTT
29. Indication of TOTT

UNIT 9: CARDIAC SURGERY
10 MARKS
1. Explain about the types of open heart surgery?
2. Explain about the preparation, recovery, early post-operative care in open heart surgery patient?
3. Explain about the late post-operative care, complications and precautions in open heart surgery?

3 MARKS
1. Anticoagulants
2. What is aorta and atrium?
3. Explain about the coronary arteries?
4. Explain about stent, plaque, ventricles?
5. What are the indications of cardiac surgery?
6. What are the types of heart surgery?
7. What are the benefits of robotically assisted cardiac surgery?

UNIT 10 PAEDIATRIC SURGERY
6 MARKS
1. Explain the indication and consideration in pediatric surgery?
2. What are the intra-operative and post-operative patient care in pediatric surgery?
3. Explain about prenatal diagnosis, neonatal transportation, iv fluids, standard maintenance? Post- operative fluid management?
4. Explain about the abdominal operation in infants and children?
5. Explain about laparoscopy in infants and children?
6. Explain about intestinal anastomosis?
7. Explain about loop colostomy and terminal ileostomy?
8. Explain about the neonatal intestinal obstruction??
9. Explain about esophageal atresia?
10. Appendicitis?
11. Adhesion obstruction?
12. Inguinal hernia?

UNIT 11: NEURO SURGERY
6 MARKS
1. Explain about the common neurosurgical interventions?
2. Explain about the positioning for neurosurgery?
3. Explain about the minimally invasive spine surgery and microvascular decompression?
4. Explain about the peripheral nerve surgery and base of skull surgery?
5. Explain about pituitary surgery and cervical spine surgery?
6. Explain about functional neurosurgery? Brain tumor excision?
7. Explain about the post-operative care for neurosurgery and trends in neurosurgery?
8. Explain about the neurosurgical nursing and complication of neurosurgery?

3 MARKS

1. Indications for neurosurgery?
2. Describe neurosurgery?
3. Explain about the types of neurosurgery?
4. What are the main sub specialties of neurosurgery?
5. Mention the common surgical interventions?
6. What are the instruments used for angiography?
7. What are the instruments used for lumbar puncture?
8. What are the instruments used for myelography?
9. What are the instruments used for cisternal puncture?

UNIT 12: MINIMALLY INVASIVE SURGERY AND ROBOTIC ASSISSTED SURGERY

3 MARKS

1. Meaning of robotic surgery?
2. Indication for robotic surgery?
3. Explain the purpose of robotic surgery in neurosurgery?
4. Explain the purpose of robotic surgery in orthopedic surgery?
5. Explain the purpose of robotic surgery in prostatectomy?
6. Explain the purpose of robotic surgery in radio surgery and radio theraphy?
7. Explain the purpose of robotic surgery in endoscopy?
8. Explain the purpose of robotic surgery in laproscopy?
9. Explain the purpose of robotic surgery in cardiac surgery?
10. Explain the purpose of robotic surgery in craniofacial surgery?
11. Risks for robotic surgery?
12. Advantages of robotic surgery?
13. Complications of robotic surgery