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. PHYSICIAN ASSISTANT

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.

PROGRAM OUTCOME (PO) - B.SC PHYSICIAN ASSISTANT

At the end of the 4 year of training B.Sc. Physician Assistant students should be able to

PHY-PO 1: Performs the duty as a Physician assistant mastering computer application with good written and communication ability and also skilled at computer applications including E- library.

PHY-PO 2: 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.

PHY-PO 3: Understanding the structure and functions of different organs in normal human body

PHY-PO 4: To learn the general Biochemistry, Microbiology and Pathology, gaining expertise in Clinical Laboratory practices.

PHY-PO 5: To make students assist anesthesiologist during administration and monitoring of anesthesia including cardiopulmonary resuscitation.

PHY-PO 6: To make students understand the pharmacological principles pertaining to the drugs used in clinical practice.

PHY-PO 7: To make students participate and coordinate emergency resuscitative measures in acute surgical situations including trauma.

PHY-PO 8: To make students participate in conduct labor and manage obstetrics and gynecological emergency situations.

PHY-PO 9: To make students efficiently in handling Pediatrics and Geriatrics related diseased conditions and treat accordingly.

PHY-PO 10: To make students in assisting super specialty surgeries like cardiothoracic vascular surgery, Neuro surgery, urology, Orthopedics and endoscopic procedures.

PHY-PO 11: To make students in providing primary care services including performing examinations, differential diagnosis and routine monitoring in various outpatient departments.

PHY-PO 12:To identify various life style disorders and with due counselling& 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 + 20 IA)**
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 : IYEAR

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 – PHYSICIAN ASSISTANT
FACULTY OF ALLIED HEALTH SCIENCES
SRI BALAJI VIDYAPEETH
(Deemed to be University)
Accredited by NAAC with 'A' Grade

II-YEAR

CORE SUBJECTS

1. Medicine & Clinical Pharmacology
2. Surgery, Equipments & Anaesthesiology
3. Paediatrics
4. Obstetrics & Gynaecology

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. Physician Assistant (PA)

Faculty code	Category	Course title	Hours					Credits				
AHS	**Core theory PA**	**Subjects**	**Theory**	**Practical**	**Tutorials**	**Clinical training**	**Total hours**	**Lecture**	**Practical**	**Tutorials**	**Clinical training**	**Total credits**
AHS	PA -5	Medicine & Clinical Pharmacology	64	64				4	2			6
AHS	PA -6	Paediatrics	80		32			5		1		6
AHS	PA -7	Surgery, Equipments & Anaesthesiology	64	64				4	2			6
AHS	PA -8	Obstetrics & Gynaecology	80		32			5		1		6
AHS	PACT 1	Clinical Training PA 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
			400	**224**	**64**	**192**	**880**	**25**	**7**	**2**	**6**	**40**

SCHEME OF EXAMINATION

Papers	Subject	Theory		Practical		Theory	Practical	Grand total 900	Min marks to pass % (450)
		UE	IA	UE	IA	UIA*	UIA*		
PA -5	Medicine & Clinical Pharmacology	80	20	80	20			200	100
PA -6	Paediatrics	80	20					100	50
PA -7	Surgery,Equipments & Anaesthesiology	80	20	80	20			200	100
PA -8	Obstetrics & Gynaecology	80	20					100	50
PACT 1	Clinical Training PA 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.

MEDICINE & PHARMACOLOGY

PAPER PA-5: MEDICINE & PHARMACOLOGY

NAME OF THE SUBJECT PAPER	**: MEDICINE & PHARMACOLOGY**
DURATION OF THEORY CLASSES	**: 64 HOURS**
DURATION OF PRACTICAL SESSION	**: 64 HOURS**
THEORY EXAMINATION	**: 100 MARKS (80U+ 20 IA)**
PRACTICAL EXAMINATION	**: 100 MARKS (80U+ 20 IA)**
DURATION OF THEORY EXAMINATION	**: 3 HOURS**
YEAR IN WHICH SUBJECT PAPER IS TAUGHT	**: II YEAR**

COURSE DESCRIPTION

The course is designed to assist students to acquire the knowledge about internal medicine or general medicine is the medical specialty dealing with the prevention, diagnosis, and treatment of internal diseases.

OBJECTIVES

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

1. Demonstrate a focused medical history and targeted physical examination appropriate to the patient‘s chief complaint(s) and the history of the present illness(es).
2. Demonstrate and apply the appropriate clinical pharmacological principles in the selection of drugs to treat common internal medicine problems.
3. Demonstrate a basic understanding of ethical principles andtheir applications to patient care
4. Demonstrate effective communication skills with a diverse array of patients, physicians and other health team members
5. Use the patient‘s history, physical exam, laboratory and imaging results to construct appropriate differential diagnoses.
6. Demonstrate clearly and concisely oral summary of patients to members of the health care team.

PROGRAM OUTCOMES

PHY-PO 1: Performs the duty as a Physician assistant mastering computer application with good written and communication ability and also skilled at computer applications including E- library.

PHY-PO 2: 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.

PHY-PO 3: Understanding the structure and functions of different organs in normal human body

PHY-PO 4: To learn the general Biochemistry, Microbiology and Pathology, gaining expertise in Clinical Laboratory practices.

PHY-PO 5: To make students assist anesthesiologist during administration and monitoring of anesthesia including cardiopulmonary resuscitation.

PHY-PO 6: To make students understand the pharmacological principles pertaining to the drugs used in clinical practice.

PHY-PO 7: To make students participate and coordinate emergency resuscitative measures in acute surgical situations including trauma.

PHY-PO 8: To make students participate in conduct labour and manage obstetrics and gynecological emergency situations.

PHY-PO 9: To make students efficiently in handling Pediatrics and Geriatrics related diseased conditions and treat accordingly.

PHY-PO 10: To make students in assisting super specialty surgeries like cardiothoracic vascular surgery, Neuro surgery, urology, Orthopedics and endoscopic procedures.

PHY-PO 11: To make students in providing primary care services including performing examinations, differential diagnosis and routine monitoring in various outpatient departments.

PHY-PO 12: To identify various life style disorders and with due counselling & 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 & PHAR CO -1: Learn & practice principles of clinical pharmacology of drugs used in clinical practice.

MED & PHAR CO -2: Learn & practice pharmacology of drugs used for central nervous system autonomic nervous system, cardiovascular system, endocrine and metabolic disorders, respiratory system, gastrointestinal system in clinical practice.
MED & PHAR CO -3: Learn & practice clinical patient presentation, Patho physiology, differential diagnosis, patient management, surgical principles and disease prevention.
MED & PHAR CO -4: Learn & practice signs and symptoms of medical and surgical condition.
MED & PHAR CO -5: Learn & practice appropriate diagnostic studies and about the collection of history.

COURSE CONTENT

UNIT	TITLE	THEORY+ PRACTICAL (64+64) HOURS
I	**Introduction to Medicine** 1. General History taking 2. History taking in specific conditions a. Cardiovascular system b. Respiratory system c. Nervous system d. GIT 3. General Physical Examination – Height, weight, BMI – classification 4. Pallor, Icterus, Cyanosis, Clubbing, Lymphadenopathy 5. Blood pressure measurement, Classification of hypertension 6. Pulse examination, Abnormal pulse 7. Respiratory rate – normal and abnormal, dyspnea, tachypnea, orthopnea, platypnea, accessory muscles of respiration 8. JVP – pressure and waveforms 9. Temperature – normal and abnormal, how to measure, fever – types of fever **Genetics: Types of genetic disease** 1. Common presentations of genetic disease 2. Investigation of genetic disease 3. Genetic counseling and testing **Musculoskeletal system: Clinical examination of musculoskeletal system** 1. Anatomy, physiology and investigations 2. Joint pain, Bone pain 3. Back and neck pain 4. Muscle pain and weakness 5. Osteoarthritis 6. Inflammatory joint disease 7. Fibromyalgia	**15+ 8**

II	**Nervous system** 1. Clinical examination of nervous system 2. Functional anatomy, physiology and investigations 3. Major manifestations of nervous system disease a. Headache b. Dizziness and vertigo c. Sensory disturbance d. Coma e. Brain stem disturbance f. Visual disturbance g. Sphincter disturbance 4. Cerebrovascular diseases 5. CNS infections 6. Diseases of nerve and muscle 7. Degenerative diseases 8. Intracranial mass lesions and raised ICP **Endocrine System & Reproductive system:** 1. Functional anatomy, physiology and investigations 2. Major manifestations of thyroid disease a. Hyperthyroidism b. Hypothyroidism c. Thyroid enlargement d. Abnormal thyroid function test results 3. Major manifestation of disease of parathyroid glands a. Hypercalcemia b. Hypocalcemia 4. Major manifestations of adrenal disease a. Cushing syndrome b. Adrenal insufficiency 5. Major manifestation of disease of endocrine pancreas a. Diabetes Mellitus 6. Major manifestations of hypothalamic and pituitary disease a. Hypopituitarism b. Galactorrhea 7. Major manifestations of reproductive disease a. Hypogonadism b. Gynecomastia, Hirsutism c. Short stature and delayed puberty d. Secondary amenorrhea e. PCOS, infertility	**15+ 8**
III	**Cardiovascular system (20 THEORY + 12 TUTORIALS)** 1.Clinical examination of cardiovascular system 2.Functional anatomy, physiology and investigations 3.Major manifestations of cardiovascular disease a. Chest pain b. Dyspnea c. Heart failure d. Cardiogenic shock e. Hypertension	**21+15**

f. Abnormal heart sounds and murmurs
g. Presyncope and syncope
h. Palpitation
i. Atrial fibrillation
j. Cardiac arrest and sudden cardiac death

4. Disorders of heart rate, rhythm and conduction
5. Atherosclerosis
6. Coronary artery disease
7. Valvular disease
8. Congenital heart disease
9. Diseases of myocardium
10. Diseases of pericardium

Respiratory System:

1. Clinical examination of respiratory system
2. Functional anatomy, physiology and investigations
3. Major manifestations of lung disease
   a. Cough
   b. Dyspnea
   c. Chest pain
   d. Hemoptysis
   e. Pleural effusion
   f. Respiratory failure
   g. Sleep disordered breathing
4. Obstructive pulmonary diseases
5. Infections of respiratory system
6. Interstitial and infiltrative pulmonary diseases
7. Pulmonary vascular disease
8. Diseases of nasopharynx, larynx and trachea
9. Diseases of pleura, diaphragm and chest wall
10. Tumors of bronchus and lungs

Integumentary system:

1. Clinical examination in skin disease
2. Functional anatomy, physiology and investigations
3. Major manifestations of skin disease:
   a. Changing mole
   b. Pruritus
   c. Scaly rash
   d. Erythroderma
   e. Urticaria
   f. Photosensitivity
   g. Blisters
   h. Leg ulcers
   i. Too little or too much hair
4. Psoriasis
5. Common skin infections and infestations
6. Disorders of nails
7. Skin tumors
8. Skin in systemic disease

Immune and lymphatic system:

1. Functional anatomy, physiology and investigations

	2. Major manifestations of blood disease a. Anemia & Polycythemia b. Leucopenia & Leukocytosis c. Lymphadenopathy & Splenomegaly d. Bleeding e. Thrombocytopenia & Thrombocytosis f. Venous thrombosis g. Pancytopenia h. Abnormal coagulation screen 3. Blood products and transfusion 4. Anemias 5. Hematological malignancies 6. Bleeding disorders 7. Infectious diseases: a. Tropical infections – Malaria, Dengue, Typhoid, Rickettsia, Leptospirosis b. Common bacterial and viral infections c. HIV/ AIDS d. PUO	
IV	**Digestive system (15 THEORY + 5 TUTORIALS)** 1. Clinical examination of gastrointestinal tract 2. Functional anatomy, physiology and investigations 3. Major manifestations of GI disease a. Dysphagia b. Dyspepsia c. Vomiting d. GI bleeding e. Diarrhea f. Malabsorption g. Weight loss h. Constipation i. Abdominal Pain 4. Diseases of mouth and salivary glands 5. Diseases of the esophagus 6. Diseases of stomach and duodenum 7. Diseases of small intestine 8. Diseases of pancreas 9. Inflammatory bowel disease 10. Irritable bowel syndrome 11. Diseases of peritoneal cavity 12. Major manifestations of liver disease a. Jaundice b. Acute liver failure c. Cirrhosis and chronic liver failure d. Portal hypertension e. Ascites f. Hepatic encephalopathy 13. Gall bladder and other biliary disease **Urinary system**	**15+8**

	1. Clinical examination of kidney and genitourinary system 2. Functional anatomy, physiology and investigations 3. Major manifestations of renal and urinary tract disease a. General manifestations of renal disease b. Disorders of urine volume c. Hematuria d. Proteinuria e. Edema f. Obstruction of the urinary tract g. Renal failure h. Incontinence 4. Glomerular diseases 5. Tubulointerstitial diseases 6. Infections of the kidney and urinary tract 7. Urinary tract calculi and nephron calcinosis 8. Tumors of the kidney and genitourinary tract 9. Renal replacement therapy **Emergency Medicine** 1. Shock 2. Sepsis 3. Respiratory failure	
V	**Pharmacology** 1. Basic drug effect 2. Classification of drugs acting on nerves, heart blood pressure, respiratory system, gastrointestinal system, kidneys, hormones, musculoskeletal system and analgesics etc., 3. Common drugs- effects and side effects and drug interactions. Narcotics and scheduled drugs.	**15+8**

PRACTICAL EXERCISE

1. Case history
2. Fever
3. Pallor
4. Pathological Conditions
5. Alcoholism
6. Liver Diseases

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

- Davidson's Principles and Practice of Medicine - Stuart Ralston, Ian Penman – Elsevier - 23rd EDITION
- Macleod's Clinical examination - J. Alastair Innes – Elsevier - 14th
- Medical Pharmacology - Padmaja Uday Kumar – CBS - 5th Edition

Blueprint for Second Year - PAPER PA – 5 - MEDICINE & PHARMACOLOGY

UNIT	SYSTEMS	WEIGHTAGE %	MARKS ALLOTED (TOTAL 80)	LAQ (2 out of 4)	SAQ (5 out of 6)	VSAQ (10 out of 12)
I	Introduction to medicine	18.75%	15		1	1
	Genetics					1
	Musculoskeletal system					1
II	Nervous system, Endocrine & Reproductive system	23.75 %	19	1	1	1+1*
III	Cardiovascular, Respiratory, Integumentary, Immune & lymphatic system	15 %	12	1*	1	2
IV	Digestive system, Emergency medicine & Urinary system	15 %	12		1	2
V	Clinical Pharmacology	27.5%	22	1+1*	1+1*	2+1*
		100 %	80			
*Note: * represents question of choice*						

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 of 4)
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 = 100 mark

PAPER PA – 5 - MEDICINE & PHARMACOLOGY
MODEL QUESTION PAPER

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

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

1. Define community acquired Pneumonia. What are the causative organisms of community acquired pneumonia?

(OR)

Write the first line anti tuberculosis drugs and their side effects.

2. Define cerebrovascular accident. What are the risk factors for cerebrovascular accident?

(OR)

Explain about Treatment of status epilepticus.

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

1. Write briefly on the clinical features of Hypothyroidism
2. What are the clinical features of Congestive heart failure?
3. Write briefly on acid peptic disease.
4. Treatment of status asthmaticus.
5. List antiemetic drugs.
6. List antirheumatic drugs.

C. Very Short answer questions - Answer any 10 questions **(10 x 3 = 30)**

1. Mention four occupational lung diseases
2. Vitamin deficiency leads to delayed coagulation and bleeding
3. Write two endocrine causes of Dwarfism
4. What are the clinical features of hypoglycemia?
5. Write the names of 3 newer Insulin
6. Write 2 drugs used in the treatment of hepatic encephalopathy
7. Name two groups of drugs used in hypertension
8. Write two uses of beta-adrenergic blockers
9. Write two advantages and two disadvantages of oral route of drug administration
10. Name two drugs used in Parkinsonism
11. Name two drugs used to treat Malaria
12. Which oral iron preparation provides better gastric tolerance?

PAEDIATRICS

PAPER 6 PA - PAEDIATRICS

NAME OF THE SUBJECT PAPER	**: PAEDIATRICS**
DURATION OF THEORY CLASSES	**: 80 HOURS**
DURATION OF TUTORIAL SESSION	**: 32 HOURS**
THEORY EXAMINATION	**: 100 MARKS (80U+ 20 IA)**
DURATION OF THEORY EXAMINATION	**: 3 HOURS**
PRACTICAL EXAMINATION	**: NO**
YEAR IN WHICH SUBJECT PAPER IS TAUGHT	**: II YEAR**

COURSE DESCRIPTION

The course is designed to assist students to clinical knowledge regarding common pediatric problems and well-child care. Course focus on the health care needs of children from birth to ten years of age. Discussions consider normal development, child growth patterns and immunizations.

OBJECTIVES

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

1. Identify normal growth, development and behavior and their assessment.
2. Take approaches to abnormalities from infancy through adolescence.
3. Describe health maintenance and preventive care for children.
4. Identify age-related issues in nutrition, safety, vaccination and risk factor modification.
5. Recognize common acute and chronic pediatric conditions, congenital and genetic syndromes, and the importance of age on their manifestations and treatment.
6. Apply principles of physiology and pharmacology to children from birth through adulthood, especially age-related changes.

PROGRAM OUTCOMES

PHY-PO 1: Performs the duty as a Physician assistant mastering computer application with good written and communication ability and also skilled at computer applications including E- library.

PHY-PO 2: 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.

PHY-PO 3: Understanding the structure and functions of different organs in normal human body

PHY-PO 4: To learn the general Biochemistry, Microbiology and Pathology, gaining expertise in Clinical Laboratory practices.

PHY-PO 5: To make students assist anesthesiologist during administration and monitoring of anesthesia including cardiopulmonary resuscitation.

PHY-PO 6: To make students understand the pharmacological principles pertaining to the drugs used in clinical practice.

PHY-PO 7: To make students participate and coordinate emergency resuscitative measures in acute surgical situations including trauma.

PHY-PO 8: To make students participate in conduct labour and manage obstetrics and gynecological emergency situations.

PHY-PO 9: To make students efficiently in handling Pediatrics and Geriatrics related diseased conditions and treat accordingly.

PHY-PO 10: To make students in assisting super specialty surgeries like cardiothoracic vascular surgery, Neuro surgery, urology, Orthopedics and endoscopic procedures.

PHY-PO 11: To make students in providing primary care services including performing examinations, differential diagnosis and routine monitoring in various outpatient departments.

PHY-PO 12: To identify various life style disorders and with due counselling & 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:

PAE – CO 1: Learn & practice the disorders of respiratory system, GIT, central nervous system, cardiovascular system, Genito urinary system, hematological & nutritional disorders of geriatric patients.

PAE – CO 2: Learn & practice the immunization & vaccination schedule for pediatrics.

PAE – CO 3: Learn & practice diagnostic methods, treatment options for pediatric patients.

PAE – CO 4: Learn & practice the principles of pediatric emergencies management

COURSE CONTENT

UNIT	TITLE	THEORY+ TUTORIAL (80+32) HOURS
I	**A. Definitions** Population, morbidity and mortality in children, maternal, perinatal, neonatal, infant and preschool mortality rates. **B. Current National Programs** ICDS RCH Vitamin A prophylaxis UIP IMCI Pulse Polio AFP ARI Diarrhea control programs. **C. Growth and development** Anthropometry Measurement and interpretation of weight length/height Head circumference Mid-arm circumference.	**20+5**
II	**A. Use of weighing machines** • Infant meter • Interpretation of Growth Charts: Road to health card and percentile Growth curves Abnormal growth patterns • Failure to thrive • Short stature Growth pattern of different organ systems like lymphoid, brain and sex organs, normal pattern of teeth eruption. **B. Important milestones** • Infancy and early childhood in areas of gross motor, fine motor, language and personal – social development • Psychological and behavioral problems measurement and interpretation of sitting height, US: LS ratio and arm span Age • Independent anthropometric measurement – principles and application.	**15+5**
III	**A. Nutrition** • Normal requirements of carbohydrates, protein, fats, minerals and vitamins for newborn, children, pregnant and lactating mother. • Common food sources. Breast feeding – colostrum and composition of breast milk, initiation and technique of	**15+7**

	feeding, hazards and demerits of prelacteal feed, top milk and bottle – feeding. • Feeding of LBW babies. Infant feeding /weaning foods, methods of weaning **B. Assessment of nutritional status of child** • History and physical examination. • Characteristics of transitional and mature milk (foremilk and Hind milk) • Protein energy malnutrition-definition, classification, features, causes and management. • Vitamins - etio-pathogenesis, clinical feature, biochemical and radiological findings, differential diagnosis and management of nutritional disorders. • Definition, causes and management of obesity.	
IV	**A. Immunization:** • National immunization Programme, • Vaccine preservation and cold- chain. • Vaccination types, contents, efficacy, storage, dose, site, route, contraindications and adverse reactions, BCG – DPT – OPV – Measles – MMR – Typhoid • Pulse Polio Immunization, • AFP (Acute flaccid paralysis) surveillance • Special vaccines Hepatitis B - Hepatitis A H influenza B Pneumococcal - Meningococcal Chicken Pox Rabies.	**10+5**
V	**A. System based disorders** Respiratory system Gastro intestinal tract Central nervous system Cardiovascular system Genitor-urinary system **B. Hematological disorder** Infectious disease – epidemiology, basic pathology, symptoms, signs, complications, investigations, differential diagnosis, management and prevention of common bacterial, viral and parasitic infections. Special reference to vaccine. **C. Preventable disease** Diarrhea, LRTI, TB, Polio, meningitis, diphtheria, whooping cough, tetanus, measles, mumps, rubella, typhoid, viral hepatitis, cholera, chicken pox, giardiasis, amoebiasis, intestinal helminthiasis, malaria, dengue fever, AIDs, Kala azar, leprosy, chlamydia infection. **D. Pediatric emergencies** Status epilepticus, status asthmaticus / acute severe asthma, shock and anaphylaxis, burns, hypertensive emergencies,	**20+10**

	gastrointestinal bleed, comatose child, congestive cardiac failure, acute renal failure. Genetics- principles of inheritance and diagnosis of genetic disorders – Down's syndrome.	

METHODS OF TEACHING

1. Lecture cum discussion
2. Demonstration
3. Clinical Site / Ward visit
4. Observation Record Book

METHODS OF EVALUATION

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

REFERENCE BOOKS

1. GHAI ESSENTIAL PEDIATRICS – Author: PAUL V K – CBS Publication - 9TH Edition
2. PEDIATRICS FOR MEDICAL GRADUATES – Author: Dr. Thirunavukkarasu, Arun Babu – Elsevier Publication - 1ST Edition

BLUEPRINT

UNIT	SYSTEMS	MARKS ALLOTED (TOTAL 80)	LAQ (2 out of 4)	SAQ (5 out of 6)	VSAQ (10 out of 12)
I	Definitions	15			1+1*
	Current National Programs		1*		1
	Growth and development			1	1
II	Use of weighing machines	9			1
	Important milestones			1	
III	Nutrition	19	1		1*
	Assessment of nutritional status of child			1	1
IV	Immunization	13	1	1*	1
V	System based disorders	24	1*		1
	Hematological disorder			1	1
	Preventable disease				1
	Pediatric emergencies			1	1

PAPER PA-6- PEDIATRICS
MODEL QUESTION PAPER

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

A. Long answer questions **(2 X 10 =20)**

1. a) Define malnutrition. Discuss in detail etiopathogenesis, clinical features, Complications and management of Severe Acute Malnutrition.

(OR)

b) Detail about Congenital hypothyroidism.

2. a) What are the causes of fever with joint pain in a child? How do you diagnose Case Rheumatic fever?

(OR)

b) Describe about Trace elements.

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

1. What is Hypernatremia Dehydration?
2. What are the physiological skin lesions in newborn?
3. Laboratory diagnosis of Thalassemia
4. What are all the National Immunization Schedule followed for new born
5. Neonatal jaundice
6. Radiological features of Rickets

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

1. DPT vaccine
2. Radiological features in Rickets
3. Acute Epiglottis
4. Cold chain
5. Autism
6. Measles vaccine
7. Hematuria in children
8. Croup
9. Congenital hypothyroidism
10. Extended immunization Programme
11. Define nephritic syndrome. Outline the management of a child with nephritic syndrome.
12. Metabolic complications in preterm baby.

SURGERY, EQUIPMENTS & ANAESTHESIOLOGY

PAPER PA-7- SURGERY, EQUIPMENTS & ANAESTHESIOLOGY

NAME OF THE SUBJECT PAPER	**: SURGERY, EQUIPMENTS & ANAESTHESIOLOGY**
DURATION OF THEORY CLASSES	**: 64 HOURS**
DURATION OF PRACTICAL SESSION	**: 64 HOURS**
THEORY EXAMINATION	**: 100 MARKS (80U+ 20 IA)**
DURATION OF THEORY EXAMINATION	**: 3 HOURS**
YEAR IN WHICH SUBJECT PAPER IS TAUGHT	**: II YEAR**

COURSE DESCRIPTION

The course is designed to assist students to acquire the knowledge with the treatment of disease, injury and deformity by operation or manipulation. Among practical skills there are adoption of aseptic technique, IV access, introduction of different tubes and catheters, apply splints, slings, casts, slabs and traction and also performing some minor surgical procedures individually.

OBJECTIVES

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

- Complete clinical evaluation of patients of common surgical problems.
- Carry out necessary investigations and interpret the results.
- Perform minor surgical procedures, anesthesia and treat minor surgical problems.
- Recognize the major surgical problems needing specialized care, initiate primary treatment and refer to appropriate centers
- Diagnose and provide competent primary care in surgical and anesthetic emergencies.
- Carry out the responsibility of management in common casualties and natural calamities or disasters to arrange basic life support.

PROGRAM OUTCOMES

PHY-PO 1: Performs the duty as a Physician assistant mastering computer application with good written and communication ability and also skilled at computer applications including E- library.

PHY-PO 2: 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.

PHY-PO 3: Understanding the structure and functions of different organs in normal human body

PHY-PO 4: To learn the general Biochemistry, Microbiology and Pathology, gaining expertise in Clinical Laboratory practices.

PHY-PO 5: To make students assist anesthesiologist during administration and monitoring of anesthesia including cardiopulmonary resuscitation.

PHY-PO 6: To make students understand the pharmacological principles pertaining to the drugs used in clinical practice.

PHY-PO 7: To make students participate and coordinate emergency resuscitative measures in acute surgical situations including trauma.

PHY-PO 8: To make students participate in conduct labour and manage obstetrics and gynecological emergency situations.

PHY-PO 9: To make students efficiently in handling Pediatrics and Geriatrics related diseased conditions and treat accordingly.

PHY-PO 10: To make students in assisting super specialty surgeries like cardiothoracic vascular surgery, Neuro surgery, urology, Orthopedics and endoscopic procedures.

PHY-PO 11: To make students in providing primary care services including performing examinations, differential diagnosis and routine monitoring in various outpatient departments.

PHY-PO 12: To identify various life style disorders and with due counselling & 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:

SURG & ANES CO 1 - Learn & practice the principles of general and regional anesthesia techniques.

SURG & ANES CO 2 - Learn & practice the principles of anesthesia equipment and monitoring.

SURG & ANES CO 3- Learn & practice the ethical principles pertaining to operation theatre complex and followed infection control protocols.

SURG & ANES CO 4- Learn & practice the principles of surgical anatomy and physiology of the body.

SURG & ANES CO 5- Learn & practice perioperative surgical management of disease**, correlations** among clinical observation, surgical (operative) pathology, and the physiological alterations achieved through surgery.

SURG & ANES CO 6- Learn & practice the basic procedures like surgical wound dressing and suturing.

UNIT	TITLE	THEORY+ PRACTICAL (64+64) HOURS
I	History of surgery, role of surgeon, importance of team work, stresses arising during operative procedure, surgical terminology, Types of incision and their indications, internal & external hemorrhage – signs and symptoms, management **Tourniquets** – use and duration of application and dangers of use. Sutures and surgical instruments	**15+ 10**
II	Pathogenesis, causes, epidemiology, clinical presentation, investigations and management of diseases of the following systems **A. Skin** • Ulcers • Wounds • Burns • Skin infections ➢ Boil ➢ Carbuncle ➢ Abscess **B. Cysts** • Epidermoid • Dermoid **C. Tumors** • Basal cell • Squamous cell carcinoma and melanoma **D. Head and neck region** • congenital anomalies ➢ Cleft lip ➢ Cleft palate, ➢ Branchial cyst and fistula, ➢ Thyroglossal cyst • Parotid and submandibular glands,	**15+ 10**

	• Oral ulcers,
	• Leukoplakia
	• Jaw tumors
	• squamous carcinoma of
	  ➢ Oral cavity
	  ➢ Pharynx
	  ➢ Larynx.
	• Thyroid and lymph nodes swelling
	
	E. Arteries
	• Limb ischemia
	• Non-invasive vascular diagnostic tests
	• Atheromatous disease
	• Aneurysm
	• Raynaud's syndrome
	• Emboli
	
	F. Veins
	• Varicose veins
	• Deep vein thrombosis
	• Pulmonary embolism	

III	**A. Breast** • Mastalgia • Fibroadenoma • Cyst • Breast abscess • Cancer **B. Esophagus** • Dysphagia • Reflux • Hiatus hernia • Benign and malignant tumors **C. Stomach and duodenum** • Peptic ulcer • Carcinoma • Pyloric stenosis	**21+15**

IV	**A. Small intestine** • Small bowel obstruction • Intestinal tuberculosis **B. Colon and rectum** • Amoebic colitis • Ulcerative colitis • Colorectal cancer **C. Appendix** • Acute appendicitis • Acute abdomen **D. Anus** • Hemorrhoids • pruritisani, • fissure and fistula-in-ano, • anorectal abscesses • cancer Peritoneum and intraperitoneal abscesses **E. Liver** • Trauma • Abscess • Cancer Biliary tract • Gall stone disease and carcinoma, • Pancreas – pancreatitis, **F. Carcinoma Hernias of** • Abdominal wall • Inguinal • Femoral • Umbilical • Epigastric **G. Urology** • diagnostic studies, • urinary calculi, • urinary infection, • prostatic hyperplasia, • tumors Epididymoorchitis, • hydrocele, • carcinoma of testicle and penis **H. Neurology** • diagnosis, • treatment and rehabilitation of disorders of entire nervous system • Various procedures ➢ microdiscectomy and laminectomy etc.	**15+10**

V	**A. Common equipment's of Anesthesiology** **B. Anesthesiology Techniques** • Personal cleanliness and aseptic techniques • Dressing techniques • wound care • Pre-operative and post-operative care of the surgical patient **C. Emergency procedures** • Endotracheal intubation • Tracheotomy • Central line placement • IV cannulation • Ambu bag ventilation • CPR • Basic Life Support	**15+10**

PRACTICAL EXERCISE

1. Instruments
2. Drugs

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

- Manipal Manual of Surgery - K. Rajagopal Shenoy – CBS – 3rd Edition
- Sabiston Textbook of Surgery - Courtney Townsend R. & Daniel Beauchamp B. – Elsevier - 20th Edition
- Short Textbook of Anesthesia - Ajay Yadav - 6th Edition - Jaypee
- Principles of Anesthesia Equipment – Yosodan Andak, Areti Bhavani, Shankar Kodali - 1st Edition - Jaypee
- Drugs in Anesthesiology - Vipin Kumar Dhama - 2nd Edition – Jaypee
- ICU Protocols - A Stepwise Approach - Rajesh Chaula, Subash Toid – 1st Edition - Springer

BLUEPRINT FOR SECOND YEAR
PAPER PA-7- SURGERY, EQUIPMENTS & ANAESTHESIOLOGY

UNIT	SYSTEMS	WEIGHTAGE %	MARKS ALLOTED (TOTAL 80)	LAQ (2 out of 4)	SAQ (5 out of 6)	VSAQ (10 out of 12)
I	A. Introduction	15	12			1
	B. Types of incision				1	
	C. Techniques					1
II	A. Skin	18.75	15	1*		1
	B. Cysts					1
	C. Tumors				1	
	D. Head and neck region					
	E. Arteries					1
	F. Veins					
III	A. Breast	7.5	6		1*	
	B. Esophagus					1
	C. Stomach and duodenum					1
IV	A. Small intestine	35	28	1		
	B. Colon and rectum					
	C. Appendix					1*
	D. Anus					1
	E. Liver				1	
	F. Carcinoma Hernias of					1
	G. Urology					1*
	H. Neurology				1	
V	A. Common equipment‘s of Anesthesiology	23.75	19	1		
	B. Anesthesiology Techniques			1*		1
	C. Emergency procedures				1	
			80			
Note: * represents question of choice						

PAPER PA-7- SURGERY, EQUIPMENTS & ANAESTHESIOLOGY
MODEL QUESTION PAPER

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

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

1. a) Describe regulation of cerebral blood flow. What are the factors that affect intracranial pressure preoperatively? Discuss various methods used to reduce intracranial pressure.

   (OR)

   b) Detail about Anesthetic implications of laser surgery of the air way

2. a) Describe the physiology of neuromuscular transmission. Discuss how neuromuscular blockers produce neuromuscular blockade and how neuromuscular blockade can be monitored.

   (OR)

   b) Detail about Pacemakers and Anesthesia.

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

1. Caudal epidural anesthesia
2. Venous air embolism
3. Criteria for discharge after day acre surgery
4. Sterilization of anesthesia equipment
5. Malignant hyper pyrexia
6. Supine hypotension syndrome

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

1. Depth of Anesthesia
2. Renal function tests
3. Post-operative nausea and vomiting
4. Hypothermia
5. Anesthetic concern of geriatric patients
6. Pulmonary oedema
7. Synthetic functions of liver
8. Brain death
9. Noradrenaline
10. Infection control in ICU.
11. Deep vein thrombosis-Prophylaxis and management
12. Environmental hazards in Operation theatres.

OBSTETRICS AND GYNAECOLOGY

PAPER PA - 8 - OBSTETRICS AND GYNAECOLOGY

NAME OF THE SUBJECT PAPER	**: OBSTETRICS AND GYNAECOLOGY**
DURATION OF THEORY CLASSES	**: 80 HOURS**
DURATION OF TUTORIAL SESSION	**: 32 HOURS**
THEORY EXAMINATION	**: 100 MARKS (80U+ 20 IA)**
DURATION OF THEORY EXAMINATION	**: 3 HOURS**
PRACTICAL EXAMINATION	**: NO**
YEAR IN WHICH SUBJECT PAPER IS TAUGHT	**: II YEAR**

COURSE DESCRIPTION

The course is designed to assist students to acquire the knowledge to be a specialized in women's health. The female body experiences many different biological functions, including menstruation, childbirth, and menopause. OB-GYNs provide care for all of this and more.

OBJECTIVES

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

1. Perform the medical interview and physical examination of women incorporating ethical, social, and diversity perspectives.
2. Analyze the impact of genetics, medical conditions, and environmental factors on maternal health and fetal development.
3. Distinguish between normal and abnormal physiologic changes during pregnancy.
4. Apply knowledge of intrapartum and postpartum care in simulations and clinical encounters with mothers and newborns.
5. Role-play and relate knowledge of contraception, sterilization and abortion in shared decision making with patients in clinical scenarios.
6. Perform gynecological procedures using integrated knowledge of perioperative care.

PROGRAM OUTCOMES

PHY-PO 1: Performs the duty as a Physician assistant mastering computer application with good written and communication ability and also skilled at computer applications including E- library.

PHY-PO 2: 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.

PHY-PO 3: Understanding the structure and functions of different organs in normal human body

PHY-PO 4: To learn the general Biochemistry, Microbiology and Pathology, gaining expertise in Clinical Laboratory practices.

PHY-PO 5: To make students assist anesthesiologist during administration and monitoring of anesthesia including cardiopulmonary resuscitation.

PHY-PO 6: To make students understand the pharmacological principles pertaining to the drugs used in clinical practice.

PHY-PO 7: To make students participate and coordinate emergency resuscitative measures in acute surgical situations including trauma.

PHY-PO 8: To make students participate in conduct labour and manage obstetrics and gynecological emergency situations.

PHY-PO 9: To make students efficiently in handling Pediatrics and Geriatrics related diseased conditions and treat accordingly.

PHY-PO 10: To make students in assisting super specialty surgeries like cardiothoracic vascular surgery, Neuro surgery, urology, Orthopedics and endoscopic procedures.

PHY-PO 11: To make students in providing primary care services including performing examinations, differential diagnosis and routine monitoring in various outpatient departments.

PHY-PO 12: To identify various life style disorders and with due counselling & 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:

OBGY-CO-1: Learn relevant applied anatomy and physiology of female reproductive system.

OBGY-CO-2: Learn the physiological changes in pregnancy and practice the conduct of labour.

OBGY-CO-3: Learn & practice differential diagnoses of patients with common benign gynecological conditions.

OBGY-CO-4: Learn & practice the management of obstetric and gynecological emergencies.

OBGY-CO -5: Learn & practice neonatology.

COURSE CONTENT

UNIT	TITLE	THEORY+ TUTORIAL (80+32) HOURS
I	**A. Bony pelvis** ➢ Important land marks of obstetrics significance ➢ Fetal skull **B. Physiological changes in pregnancy** ➢ Conception ➢ Abortions ➢ Gestational trophoblastic diseases ➢ Menopause **C. Infections** ➢ STD ➢ Genital TB ➢ HIV ➢ TORCH ➢ Vertical transmission of HIV	**20+7**
II	**A. Obstetrics** ➢ Diagnosis of pregnancy ➢ Antenatal care and fetal surveillance ➢ Normal and abnormal presentations and positions ➢ Active management of Labour ➢ Dystocia due to bony pelvis - soft tissue ➢ IUGR ➢ IUD **B. Medical Disorders in Labour** ➢ Preterm Labour ➢ Prolonged Labour ➢ Obstructed Labour ➢ Premature rupture of membranes (PROM) ➢ Poly and Oligohydramnios ➢ Postdated delivery ➢ Rupture uterus ➢ previous LSCS ➢ First trimester bleeding	**20+10**

	➢ third trimester bleeding ➢ preeclampsia and eclampsia **C. Medical disorders complicating pregnancy** ➢ high risk pregnancies, ➢ Surgical emergencies in obstetrics, ➢ Rh iso immunization ➢ Partogram ➢ ultra sound in obstetrics ➢ neonatal resuscitation ➢ analgesia and anesthesia in obstetrics ➢ instrumental deliveries, LSCS, third stage complications ➢ normal and abnormal puerperium ➢ morbidity and mortality ➢ medical auditing in obstetrics	
III	**A. Gynecology** ➢ Maldevelopment ➢ Injuries ➢ Infections ➢ Cysts ➢ Tumors of female genital tract **B. Pathological changes:** • **Vulva** ➢ Inflammation ➢ Cyst ➢ Neoplasia ➢ Neoplasm ➢ Atrophy ➢ Dystrophy ➢ Ulcers • **Vagina** ➢ Cytology ➢ Infection ➢ Inflammation ➢ Neoplasia ➢ Leucorrhea ➢ Carcinoma • **Uterus** ➢ Endometriosis ➢ Adenomyosis ➢ Hyperplasia ➢ Atrophy ➢ Carcinoma ➢ prolapse, ➢ displacements (inversion and retroversion), ➢ endometriosis abnormal uterine bleeding ➢ post-menopausal bleeding ➢ endometrial hyperplasia • **Cervix** ➢ Erosion	**20+10**

	➢ Infections ➢ Malignancy ➢ Ulcer ➢ Dysplasia **C. Benign and malignant tumors** Primary and secondary amenorrhea, infertility, PCOD Assisted reproductive techniques Choriocarcinoma	
IV	**A. Urinary system** Stress incontinence, pelvic pain, low back ache Cancer screening for genital malignancy and breast / Pap smear Radiotherapy outline and chemotherapy **B. Neonatology** Neonatal resuscitation meconium aspiration syndrome preterm care RDS neonatal jaundice congenital anomalies birth injuries	**20+10**

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

- DC Dutta's Textbook of Obstetrics - Hiralal Konar – Jaypee – 9th edition
- Dc Dutta‘s Textbook of Gynecology - Hiralal Konar – Jaypee – 7th edition
- Essentials of Gynecology - Lakshmi Seshadri - WOLTERS KLUWER – 2nd Edition
- Essentials of Obstetrics - Lakshmi Seshadri, Gita Arjun - WOLTERS KLUWER – 1st Edition

BLUEPRINT FOR SECOND YEAR
PAPER PA - 8 - OBSTETRICS AND GYNAECOLOGY

UNIT	SYSTEMS	WEIGHTAGE %	MARKS ALLOTED (TOTAL 80)	LAQ (2 out of 4)	SAQ (5 out of 6)	VSAQ (10 out of 12)
I	A. Bony pelvis	15	12			1*
	B. Physiological changes in pregnancy				1	1
	C. Infections				1*	1
II	A. Obstetrics	31.25	25		1	1
	B. Medical Disorders in Labour			1		1
	C. Medical disorders complicating pregnancy			1*		1
III	A. Gynecology	26.25	21		1	1
	B. Pathological Changes			1*		1
	C. Benign & Malignant Tumors				1	1
IV	A. Urinary system	27.5	22	1		1
	B. Neonatology				1	1+1*
			80			
*Note: * represents question of choice*						

- 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 of 4)

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 = 100 mark

PAPER PA – 8 - OBSTETRICS AND GYNAECOLOGY
MODEL QUESTION PAPER

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

A. Long answer questions **(2 X 10 =20)**

1.a) Correlate the signs and symptoms of high-risk pregnancy.

(OR)

b) Detail about causes of post-menopausal bleeding and how will you evaluate the women with post-menopausal bleeding?

2. a) Write a note on utero vaginal prolapse. Mention its various grades and management. Explain cervical ulcers its causes and management?

(OR)

b) Detail about differential diagnosis of bleeding per vagina in third trimester and three differentiating features?

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

1. What is the medical management of Eclampsia.
2. What are the risk factors for a woman to develop uterine prolapse
3. What are the complications of ovarian cyst?
4. How will you treat a case of iron deficiency in a pregnant woman
5. What are the cardiovascular changes during pregnancy?
6. Meconium aspiration syndrome and RDS.

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

1. How the fetal wellbeing is assessed antenatally?
2. List 4 antenatal complications of diabetes.
3. Define primary amenorrhea.
4. List 4 antenatal complications of diabetes.
5. Which antihypertensive drug is not safe inpregnancy.
6. Mention 4 complications of fibroid.
7. What are the criteria to diagnose PCOS?
8. Birth injuries.
9. What is Umbilical hernia.
10. Define pap smear.
11. List 4 sexually transmitted diseases.
12. Classify suture materials with example.

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 + 20 IA)**
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 tribalpeople.
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 ofextracting and using mineral resources, case studies.
4 Food resources: World food problems, changes caused by agriculture andovergrazing, effects of modern agriculture, fertilizer-pesticide problems,water logging, salinity, case studies.
5 Energy resources: Growing energy needs, renewable and non-renewableenergy 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, ethicalaesthetic 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, poachingof wildlife, man wildlife conflicts
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation ofbiodiversity

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 urbanand 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 + 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)

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 theEnvironment. Hazardous Materials used in Biotechnologytheir Handling andDisposal.

UNIT II: GOOD LABORATORY PRACTICE PRINCIPLE

Test Facility Organization and Personnel: Management responsibility, Study director_s 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 : 16 Hrs

DURATION OF PRACTICAL SESSIONS : 32 Hrs

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 + 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)

Course Objectives

- To enable the students to understand at different levels of information systems 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/IntellectualProperty/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 : 16 Hrs

DURATION OF PRACTICAL SESSIONS : 32 Hrs

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)

Learning objectives

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

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 Hygiene concepts

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, KasturiSundarRao, 4th edition, Bi Publications Pvt Ltd
3. Concepts of Epidemiology, Raj S Bhopal, 2002, Oxford University press

Reference Books

1. A Treatise On Hygiene And Public Health, BirendraNathGhosh, 9th edition, Calcutta Scientific Publishing Co
2. An Introduction to Public Health, Caryl Thomas, 1949, John Wright and Sons Ltd.,

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
- How the theories and principles of psychology may be applied to individual, 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, —Introduction to Psychology‖ 6th Edition, Oxford IBH publishing Co. Pvt. Ltd., New Delhi,1975.
3. Baron.A. Robert, Psychology, Pearson Education Vth Ed.,2002
4. Psychology –the science of behavior –fifth edition1982-Neil Carson-William Bulkist-Allyn and Bacon.

GENERIC ELECTIVE COURSES – II YEAR SOCIOLOGY

NAME OF THE SUBJECT PAPER : SOCIOLOGY

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)

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	**: 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

- To understand the fit between you and your entrepreneurial 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
- To structure a business model around the problem, customer, and solution and 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 newbusinesses.
- 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 – PHYSICIAN ASSISTANT
FACULTY OF ALLIED HEALTH SCIENCES
SRI BALAJI VIDYAPEETH
(Deemed to be University)
Accredited by NAAC with 'A' Grade

III YEAR

CORE SUBJECTS

1. Cardiology & Cardiac Surgery
2. Neurology
3. Nephrology / Pulmonology
4. Gastroenterology/Orthopaedics.

Discipline Elective Course (DEC) – Choose any TWO

1. Transgender Healthcare
2. Basic Assessment & Support in Intensive Care Unit
3. Basic Airway Management
4. Palliative care
5. Basic Respiratory Support

AHS COURSE CONTENT THIRD YEAR B.SC. PHYSICIAN ASSISTANT (PA)

Faculty code	Category	Course title	Hours					Credits				
AHS	**Core theory PA**	**Subjects**	**Theory**	**Practical**	**Tutorials**	**Clinical training**	**Total hours**	**Lecture**	**Practical**	**Tutorials**	**Clinical training**	**Total credits**
AHS	PA -9	Cardiology & Cardiac Surgery	64	64				4	2			6
AHS	PA -10	Neurology	80		32			5		1		6
AHS	PA -11	Nephrology / Pulmonology	64	64				4	2			6
AHS	PA -12	Gastroenterology/ Orthopaedics	80		32			5		1		6
AHS	PACT 2	Clinical Training PA 9 to 12				256					8	8
AHS	DE 1-8	Student‘s choice	64					4				4
AHS	DE 1-8	Student‘s choice	64					4				4
			416	**128**	**64**	**256**	**864**	**26**	**4**	**2**	**8**	**40**

SCHEME OF EXAMINATION

Papers	Subject	Theory		Practical			Grand total (900)	Min pass marks (450)
		UE	IA	UE	IA	UIA*		
PA -9	Cardiology & Cardiac Surgery	80	20	80	20		200	100
PA -10	Neurology	80	20				100	50
PA -11	Nephrology / Pulmonology	80	20	80	20		200	100
PA -12	Gastroenterology/ Orthopaedics	80	20				100	50
PACT 2	Clinical Training PA 9 to 12					100	100	50
DEC	Discipline elective	80	20				100	50
DEC	Discipline elective	80	20				100	50

CARDIOLOGY AND CARDIAC SURGERY

PAPER PA-9- CARDIOLOGY AND CARDIAC SURGERY

NAME OF THE SUBJECT PAPER	**: CARDIOLOGY AND CARDIAC SURGERY**
DURATION OF THEORY CLASSES	**: 64 HOURS**
DURATION OF PRACTICAL SESSION	**: 64 HOURS**
THEORY EXAMINATION	**: 100 MARKS (80U+ 20 IA)**
PRACTICAL EXAMINATION	**: 100 MARKS (80U+ 20 IA)**
DURATION OF THEORY EXAMINATION	**: 3 HOURS**
YEAR IN WHICH SUBJECT PAPER IS TAUGHT	**: III YEAR**

COURSE DESCRIPTION

The course is designed to assist students to acquire the knowledge includes coronary artery and valve diseases, interventional and pediatric cardiology, cardiovascular surgery, cardiomyopathy, and heart failure, arrhythmias and stimulation, cardiovascular imaging, vascular medicine and hypertension, epidemiology and risk factors.

COURSE OBJECTIVES

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

- Demonstrate clinical skills of medical history and physical examination, with specific attention to acute and chronic cardiovascular diseases.
- Demonstrate clinical skill in medical management of patients admitted with cardiovascular disease.
- Describe the current understanding of the atherosclerotic vascular process.
- Describe the general basis and performance of cardiac catherization, coronary arteriography, angioplasty, coronary stenting.
- Discuss the general pharmacology and use of the cardiovascular drugs
- Differentiate with the concept of false positive/negative testing in cardiology.
- Discuss immediate therapy for the following in the emergency department setting

PROGRAM OUTCOME

PHY-PO 1: Performs the duty as a Physician assistant mastering computer application with good written and communication ability and also skilled at computer applications including E- library.

PHY-PO 2: 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.

PHY-PO 3: Understanding the structure and functions of different organs in normal human body

PHY-PO 4: To learn the general Biochemistry, Microbiology and Pathology, gaining expertise in Clinical Laboratory practices.

PHY-PO 5: To make students assist anaesthesiologist during administration and monitoring of anaesthesia including cardiopulmonary resuscitation.

PHY-PO 6: To make students understand the pharmacological principles pertaining to the drugs used in clinical practice.

PHY-PO 7: To make students participate and coordinate emergency resuscitative measures in acute surgical situations including trauma.

PHY-PO 8: To make students participate in conduct labour and manage obstetrics and gynaecological emergency situations.

PHY-PO 9: To make students efficiently in handling paediatrics and geriatrics related diseased conditions and treat accordingly.

PHY-PO 10: To make students in assisting super specialtysurgeries like cardiothoracic vascular surgery, Neuro surgery, urology, orthopaedics and endoscopic procedures.

PHY-PO 11: To make students in providing primary care services including performing examinations, differential diagnosis and routine monitoring in various outpatient departments.

PHY-PO 12: To identify various life style disorders and with due counselling & guidance advising the patients with proper diet, hygiene and Yoga to keep the body, mind, soul and behaviour healthy.

COURSE OUTCOME

CTVS CO-1: Learn relevant applied anatomy and physiology of cardiovascular system.

CTVSCO-2: Learn & practice disorders of cardiovascular system.

CTVSCO-3: Learn & practice diagnostic tools like ECG, ECHO, Chest x-ray, TMT, Holter, 24hrs ambulatory, Bp monitoring and blood gas analysis.

CTVSCO -4: Learn & practice the interventional cardiology procedures.

CTVSCO-5: Learn & practice collection of history, physical examination, diagnostic treatment skills and procedure skills.

CTVSCO-6: Learn & practice the principles of preoperative assessment, anaesthetic management and post-operative management of cardiothoracic surgical patients.

CTVSCO-7: Learn & practice the advanced principles of cardiac surgery.

CTVSCO -8: Learn & practice pharmacology of cardiovascular drugs.

COURSE CONTENT

UNIT	TITLE	THEORY+ PRACTICAL (64+64) HOURS
I	**A. Basics** • structural basis of cardiovascular disease • embryology, chambers • heart valves • surface marking • great vessels • blood • cardiovascular disease • cardiac cycle • heart sounds • circulation of blood.	15+12
II	**A. Cardiovascular responses** • Cardiovascular responses to exercise • Heart failure and compensatory mechanism • Cardiac muscle action, coronary perfusion.	10+12
III	**A. Cardiovascular diseases** • Symptoms and signs, pulse, BP, JVP • Congenital heart disease ➢ cyanotic and acyanotic heart diseases **B. Hypertension** • Essential malignant • Systemic and pulmonary hypertensions **C. Arterial diseases** • Atherosclerosis – risk factors • Burger's disease Coronary, • Rheumatic heart disease, • Heart failure, • Cardiac arrhythmias, **D. Cardiomyopathies** • Peripheral vascular disease • pulmonary thromboembolism, • Systemic diseases affecting the heart, • pregnancy and heart disease • Pericardial diseases	15+14

	• Cardiac traum • Tumors of heart	
IV	**A. Prevention of heart diseases** **B. Diagnostic tools** • ECG • Chest X-ray • ECHO • TMT • Holter • 24-hour ambulatory BP monitoring • blood analysis., etc. **C. Cardiac catheterization and coronary angiography** • preparation of patient physically and mentally • Pre- and post-operative care and rehabilitation Programme • PPI Importance of life style modification measures.	10+12
V	**Cardiac surgery Basics:** • Cardiopulmonary bypass • Closed and open-heart operation • PDA ligation • Closed mitral valvotomy • Pulmonary artery banding • Block trussing shunt • Pericardiectomy • Shunt operations • ASD and VSD closure • Tetralogy of Fallot correction • Valvular disease surgeries • Surgery for transpositions • Other corrective surgeries and coronary surgeries	14+14

PRACTICAL EXERCISE

1. Holter Monitoring
2. Treadmill
3. ECG
4. ECHO
5. Pathological Conditions

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

- Cardiothoracic Surgery (Oxford Specialist Handbooks in Surgery) - Joanna Chikwe - 2nd Edition – Oxford
- Sabiston and Spencer Surgery of the Chest 2-Volume Set Frank Sellke, Pedro del Nido, Scott Swanson - 9th Edition – Elsevier.
- Kirklin/Barratt-Boyes Cardiac Surgery (2-Volume Set) NicholasKouchoukos, James Kirklin,4th Edition,Saunders
- Perloff's Clinical Recognition of Congenital Heart Disease, Joseph Perloff,Ariane Marelli, 6th Edition, Saunders
- Gravlee,Cardiopulmonary Bypass: Principles and Practice - Glenn P. Gravlee,Alfred H.Stammers, Third Edition, WOLTERS KLUWER
- Rutherford's Vascular Surgery and Endovascular Therapy, 2-Volume Set, Anton P Sidawy, Bruce A Perler, 9th Edition, Elsevier
- Cardiac Surgery in the Adult, Lawrence H. Cohn, David H. Adams, Fifth Edition, MC GRAW HILL
- Park's Pediatric Cardiology for Practitioners, Myung Park, 6e, Elsevier India
- Valvular Heart Disease, Joseph S. Alpert, Third Edition, LIPPINCOTT WILLIAMS AND WILKINS

BLUEPRINT FOR THIRD YEAR
PAPER PA-9- CARDIOLOGY AND CARDIAC SURGERY

UNIT	SYSTEMS	WEIGHTAGE %	MARKS ALLOTED (TOTAL 80)	LAQ (2 out of 4)	SAQ (5 out of 6)	VSAQ (10 out of 12)
I	Basics	11.25	9	-	1	1
II	Cardiovascular responses	11.25	9	-	1	1
III	A. Cardiovascular diseases	27.5	22	1	-	1
	B. Hypertension			-	-	1
	C. Arterial diseases			-	1*	1
	D. Cardiomyopathies			-	-	1+1*
IV	A. Prevention of heart diseases	26.25	21	-	1	1
	B. Diagnostic tools			1*	-	1
	C. Cardiac catheterization and coronary angiography			-	1	1
V	Cardiac surgery Basics	23.75	19	1+1*	1	1+1*
			80	-	-	
*Note: * represents question of choice*						

- 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 of 4)

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 = 100 mark

PAPER PA-9- CARDIOLOGY & CARDIAC SURGERY
MODEL QUESTION PAPER

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

A. Long answer questions **(2 X 10 = 20)**

1.a) Explain in detail about Pulmonary Thrombi Embolism.

(OR)

b) Detail about Myocardial perfusion contrast enhanced echocardiography.

2.a) Discuss in detail about Mechanical support for circulation.

(OR)

b) Discuss in detail about Arterial smooth muscle cell in health and disease.

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

1. Sinus node dysfunction.
2. Post-operative Atrial fibrillation
3. End of life indication in permanent pacemaker.
4. Echocardiography evaluation of RV function
5. What are the cardiac biomarkers?
6. Exercise electro Cardio graphic testing. Evaluation of myocardial viability?

C. Very Short answer questions -Answer any 10 questions **(10 x 3= 30)**

1. What are the valves in heart?
2. Write the mechanism of blood circulations.
3. What is coronary perfusion?
4. What is blood pressure?
5. How to prevent the heart disease?
6. SA node
7. Flutter waves
8. ECG standardisation
9. Write the methods of cardiopulmonary bypass.
10. What is pericardiectomy.
11. What is PPI?
12. What are diagnostic tools used to detect heart diseases.

NEUROLOGY

PAPER PA-10 – NEUROLOGY

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

COURSE DESCRIPTION

The course is designed to assist students to acquire the knowledgeabout Neurological symptom theory based on functional neuro-anatomy, overview about laboratory studies within neurology and the most important neurological diseases (ALS, spinal cord, multiple sclerosis, polyneuropathy, muscle diseases, Parkinson disease and other movement disorders, head-ache, dizziness, stroke, epilepsy, brain tumours). Occurrence, causes, neuro-anatomical background and treatment of these diseases. Functional symptoms, care/treatment of patients.

COURSE OBJECTIVES

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

- Describe neurological symptom theory
- Describe neurological examination methods
- Describe the most common neurological diseases
- Describe reasons for head-ache and dizziness

PROGRAM OUTCOME

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

PHY-PO 1: Performs the duty as a Physician assistant mastering computer application with good written and communication ability and also skilled at computer applications including E- library.

PHY-PO 2: To gain knowledge about laboratory safety precautions, biomedical waste management adhering to the environmentalneeds of the society, and preventing the spread of infectious diseases.

PHY-PO 3: Understanding the structure and functions of different organs in normal human body

PHY-PO 4: To learn the general Biochemistry, Microbiology and Pathology, gaining expertise in Clinical Laboratory practices.

PHY-PO 5: To make students assist anaesthesiologist during administration and monitoring of anaesthesia including cardiopulmonary resuscitation.

PHY-PO 6: To make students understand the pharmacological principles pertaining to the drugs used in clinical practice.

PHY-PO 7: To make students participate and coordinate emergency resuscitative measures in acute surgical situations including trauma.

PHY-PO 8: To make students participate in conduct labour and manage obstetrics and gynaecological emergency situations.

PHY-PO 9: To make students efficiently in handling paediatrics and geriatrics related diseased conditions and treat accordingly.

PHY-PO 10: To make students in assisting super specialtysurgeries like cardiothoracic vascular surgery, Neuro surgery, urology, orthopaedics and endoscopic procedures.

PHY-PO 11: To make students in providing primary care services including performing examinations, differential diagnosis and routine monitoring in various outpatient departments.

PHY-PO 12: To identify various life style disorders and with due counselling & guidance advising the patients with proper diet, hygiene and Yoga to keep the body, mind, souland behaviour healthy.

COURSE OUTCOME

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

NEU CO 1: Learn relevant applied anatomy and physiology of neurological system.

NEU CO 2: Learn & practice Neurological disorders.

NEU CO 3: Learn & practice neurological examination procedures.

NEU CO 4: Learn & practiceNeuro surgical procedures.

COURSE CONTENT

UNIT	TITLE	THEORY+ TUTORIAL (80+32) HOURS
I	**A. Nervous system** • Basics • Neurotransmitters • general principles and common transmitters **B. Cell membrane** • physicochemical properties • permeability and transport • bioelectricity • Genesis of resting membrane potential, action potential • properties of nerve-fibers. **C. Neuromuscular junction Muscle proteins** • Excitation • Contraction coupling • Injury and repair of nerves and muscles • Work physiology.	**16+5**
II	**A. Sensory system** • Functional organization of sensory system • Perception of sensory stimuli • Coding • Physiology of pain. **B. Motor System** • Functional organization of motor system • Properties of reflexes • Brain stem • Stretch • Tendonreflexes • Basal ganglia • Cerebellum and vestibular neck reflexes • Maintenance of equilibrium • Localizing the level of lesion in neurological diseases **C. Visceral and motivational system** • Autonomic nervous system, • Hypothalamus • Limbic system • Emotions • EEG • Sleep and wakefulness • Learning	**16+7**

	• Memory and speech	
III	**A. Neuropathology** • Trauma Inflammatory disorders • pyogenic and tuberculous meningitis • brain abscess • tuberculoma CSF and its disturbances – cerebral oedema • raised intracranial pressure, **B. Cerebrovascular disease** • Atherosclerosis • Thrombosis • Embolism • Aneurysm • Hypoxia • Infarction • Hemorrhage	**14+5**
IV	**A. Neurological diseases:** • Clinical examination of nervous system, • investigations Major manifestations • headache, • facial pain, • raised intracranial tension, • faintness, • dizziness, • syncope, • vertigo **B. Disorders of sleep and movement Sensory disturbances** (numbness, tingling and sensory loss) • acute confessional state • coma and brain death • Aphasia and focal cerebral disorders • disturbances of brain stem • vision and sphincter • Headaches ➢ Migraine ➢ Cluster ➢ Seizures **C. Cerebrovascular disease-** • Dementia • meningitis • encephalitis • cranial nerve diseases • spinal cord diseases • tumors(primary and secondary)	**20+10**

V	**A. Peripheral nerve disorders:** • Peripheral neuropathies and demyelinating disorders • Multiple sclerosis • Parkinson‘s disease • Extrapyramidal disorders • Cerebellar disorders **B. Motor neuron disease** • Diseases of muscles • Neurological manifestations of systemic diseases • Nutritional and metabolic diseases of the nervous system	**14+5**

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

- Hutchison's Clinical Methods-An Integrated Approach to Clinical Practice, Michael Glynn William M Drake, ELSEVIER, 25th Edition
- Bradley's Neurology in Clinical Practice, 2-Volume Set, Robert Daroff, ELSEVIER, 7th Edition

BLUEPRINT – CARDIOLOGY AND CARDIAC SURGERY

UNIT	SYSTEMS	WEIGHTAGE %	MARKS ALLOTED (TOTAL 80)	LAQ (2 out of 4)	SAQ (5 out of 6)	VSAQ (10 out of 12)
I	Nervous system	15	12			1
	Cell membrane					1
	Neuromuscular junction Muscle proteins				1	1*
II	Sensory system	31.25	25	1		1
	Motor System				1*	1
	Visceral and motivational system				1	1
III	Neuropathology	15	12	1*		1
	Cerebrovascular disease				1	1
IV	Neurological diseases	27.5	22	1		1
	Disorders of sleep and movement Sensory disturbances				1	1
	Cerebrovascular disease					1*
V	Peripheral nerve disorders	11.25	9	1*	1	
	Motor neuron disease					1
		100	80			
*Note: * represents question of choice*						

- 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 of 4)

  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 = 100 mark

PA-10- NEUROLOGY
MODEL QUESTION PAPER

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

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

1.a) Describe the clinical features, etiological factors and the management of the Cerebral palsy.

(OR)

b) Detail about Radial nerve palsy

2. a) Discuss Guillain Barre syndrome, its clinical course and management.

(OR)

b) Detail about Cervical spondylosis

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

1. Wrist drops
2. Entrapment neuropathy
3. Spina bifida occulta
4. Extradural haematoma
5. Spondylolisthesis
6. Visual field defects.

C. Very Short answer questions -Answer any 10 questions **(10 X3 = 30)**

1. Features of lower motor neuron paralysis
2. Anal redux
3. Brain Death
4. Brachial plexus
5. Lumbar puncture
6. Muscle spindle
7. Neurotransmitters
8. Intracranial tumours
9. Neurogenic bladder
10. Cerebral blood flow and auto regulation
11. Acetyl choline receptors
12. Management of neuropathic pain.

NEPHROLOGY & PULMONOLOGY

PAPER PA-11 –NEPHROLOGY & PULMONOLOGY

NAME OF THE SUBJECT PAPER : NEPHROLOGY & PULMONOLOGY

DURATION OF THEORY CLASSES : 64 HOURS

DURATION OF PRACTICAL SESSION : 64 HOURS

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

UNIVERSITY PRACTICAL EXAMINATION : 100 MARKS (80U+ 20 IA)

DURATION OF THEORY EXAMINATION : 3 HOURS

YEAR IN WHICH SUBJECT PAPER IS TAUGHT : III YEAR

COURSE DESCRIPTION

The course is designed to assist students to acquire the knowledge about individual to work in health care sector. Physician Assistants will work as part of a medical team of physicians, nurses, to manage patient care by assisting with medical procedures. They are trained to perform variety of procedures- giving medication, aerosol therapy, pulmonary function tests, oxygen therapy, blood gas analysis, air way management, medical ventilation and monitoring devices. They are committed to respiratory wellness and disease prevention. They can also assist patients in the rehabilitation programs of cessation of cigarette smoking.

OBJECTIVES

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

- Will demonstrate the ability to understand, apply and evaluate relevant clinical information to their role as respiratory care therapist
- Will demonstrate the technical proficiency in all skills involved in their role as Physician Assistant.
- Will perform a complete assessment of critically ill patient‘s oxygenation, ventilation and hemodynamic status and develop an appropriate respiratory care plan.
- Will Describe appropriate infection control strategies implemented in the ICU
- Will comprehend the role of the respiratory therapist in disaster preparedness and management.
- Explains patient‘s education process in asthma management, chronic obstructive pulmonary disease (COPD) management, pulmonary rehabilitation, discharge planning and tobacco smoking cessation.
- Will be a Team member in the Code Blue or Emergency Team of the hospital.
- Will demonstrate appropriate personal behaviors consistent with professional andexpectations.

PROGRAM OUTCOMES

PHY-PO 1: Performs the duty as a Physician assistant mastering computer application with good written and communication ability and also skilled at computer applications including E- library.

PHY-PO 2: 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.

PHY-PO 3: Understanding the structure and functions of different organs in normal human body

PHY-PO 4: To learn the general Biochemistry, Microbiology and Pathology, gaining expertise in Clinical Laboratory practices.

PHY-PO 5: To make students assist anesthesiologist during administration and monitoring of anesthesia including cardiopulmonary resuscitation.

PHY-PO 6: To make students understand the pharmacological principles pertaining to the drugs used in clinical practice.

PHY-PO 7: To make students participate and coordinate emergency resuscitative measures in acute surgical situations including trauma.

PHY-PO 8: To make students participate in conduct labour and manage obstetrics and gynecological emergency situations.

PHY-PO 9: To make students efficiently in handling Pediatrics and Geriatrics related diseased conditions and treat accordingly.

PHY-PO 10: To make students in assisting super specialtysurgeries like cardiothoracic vascular surgery, Neuro surgery, urology, Orthopedics and endoscopic procedures.

PHY-PO 11: To make students in providing primary care services including performing examinations, differential diagnosis and routine monitoring in various outpatient departments.

PHY-PO 12: To identify various life style disorders and with due counselling & 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:

NEP & PUL CO-1: Learn relevant applied anatomy and physiology of nephrology & pulmonary system.

NEP & PUL CO-2: Learn & practice Nephrology and pulmonary disorders.

NEP & PUL CO-3: Learn & practice diagnostic procedures such as fiberoptic bronchoscopy and imaging studies.

NEP & PUL CO-4: Learn & practice urology and pulmonary surgical procedures.

COURSE CONTENT

UNIT	TITLE	THEORY+ PRACTICAL (64+64) HOURS
I	**A. Genito- urinary system** • Basics • Innervations of urinary bladder in detail • Microscopic structure of the kidney • Juxtaglomerular apparatus • Microcirculation of kidney • Histopathology of kidney • Ureters • Urinary bladder and urethra **B. Renal hemodynamics** • Glomerular filtration • Renal function, • Renal function tests • Micturition	**11+ 12**
II	**A. Urinary tract pathology** • Basis of impaired renal function • Urine analysis • Glomerulonephritis ➢ Classification ➢ Primary (proliferative and non-proliferative) ➢ Secondary glomerulonephritis SLE Purpura Polyarteritis Amyloidosis Diabetes Nephritic syndrome • Acute renal failure ➢ Progressive renal failure and end stage renal disease ➢ Pyelonephritis ➢ Reflux nephropathy ➢ Interstitial nephritis	**13+ 14**

	B. Renal and genitourinary tract tumors Renal cell carcinoma and nephroblastoma Renal vascular disorders kidney changes in hypertension Urinary bladder Cystitis Carcinoma Urinary tract tuberculosis, Urolithiasis and obstructive uropathy Congenital abnormalities of kidneys and urinary	
III	**A. Clinical examination of kidney and genitourinary system** Symptoms Signs and investigations, Major manifestations Dysuria Pyuria Urethral symptoms Disorders of urine volume Hematuria Proteinuria Oedema Obstruction of urinary tract Incontinence Renal involvement in systemic disorders Drugs and kidney Renal replacement therapy	**13+12**
IV	**A. Upper airway diseases** • basic respiratory mechanics • causes and pathophysiology of hypoxia and hypercapnia **B. Respiratory failure** • Acute, chronic mechanism and management • Allergy and bronchial asthma, • Chronic obstructive lung diseases • Restrictive/interstitial lung diseases • Pulmonary tuberculosis • Occupational lung diseases.	**12+12**
V	**A. Lung cancer** • Primary and secondary • hemoptysis • pneumonia. **B. Pleural diseases** • Pneumothorax • Pleural effusion • Cardiogenic and non-cardiogenic pulmonary edema • Diseases of the Diaphragm and the chest wall.	**15+14**

PRACTICAL EXERCISE

1. History Taking
2. Sleep Lab
3. Bronchoscopy

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

- Comprehensive clinical Nephrology, John Feehally, Richard J.Johnson, Elsevier, Sixth edition
- Brenner & Rector‘s the Kidney, Alan S.L.YU, Marten W.Taal, Elsevier, Eleventh edition
- Handbook of Nephrology, IrfanK.Moinuddin, David J. Leehey, Wolters Kluwer, Second edition
- Schrier‘s diseases of the kidney, Thomas M.Coffman, Ronald J.Falk, Wolter Kluwer, Ninth edition
- Handbook of kidney Transplantation, Gabriel M.Danovitch, Wolter Kluwer, Sixth edition
- Handbook of Dialysis, John T.Daugirdass, Lippincott Williams & Wilkins, Fifth edition
- Clinical Manifestations and Assessment of Respiratory Disease, Terry Des Jardins Med Rrt, George G Burton, Elsevier, 7th Revised Edition
- Murray & Nadel's Textbook of Respiratory Medicine, 2-Volume Set, Robert J. Mason, Arthur Slutsky, Elsevier, 6th edition
- WESTS PULMONARY PATHOPHYSIOLOGY, WEST J. B., Wolter Kluwer, 9th Edition

Blueprint for Third Year - PAPER PA-11 –NEPHROLOGY & PULMONOLOGY

UNIT	SYSTEMS	WEIGHTAGE %	MARKS ALLOTED (TOTAL 80)	LAQ (2 out of 4)	SAQ (5 out of 6)	VSAQ (10 out of 12)
I	Genito- urinary system	15	12	-	-	1
	Renal hemodynamics			-	1	1
II	Urinary tract pathology	27.5	22	1	-	1
	Renal and genitourinary tract tumors			-	1	1+1*
III	Clinical examination of kidney and genitourinary system	11.25	9	1*	1	1
IV	Upper airway diseases	31.25	25	1	1	1
	Respiratory failure				1*	2
V	Lung cancer	15	12	1*	-	1
	Pleural diseases				1	1+1*
*Note: * represents question of choice*						

- 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 of 4)
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 = 100 mark

PAPER PA-11 - NEPHROLOGY &PULMONOLOGY
MODEL QUESTION PAPER

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

A. Long answer questions **(2 X 10 = 20)**

1. a) How is uric acid handled by kidneys? Mention common causes Hyperuricemia. Outline the impact of Hyperuricemia on kidney.

(OR)

b) IDEAL (Initiation of Dialysis Early and Late) trial – Essential features of the study and its impact on clinical practice.

2.a) Discuss defense mechanism of lung. (OR)

b) Describe about Pathologic classification of diabetic nephropathy and therapeutic trials in retarding progression of diabetic nephropathy

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

1. Role of measurement of urinary electrolytes in clinical nephrology.
2. Urine sediment analysis in Acute Kidney Injury
3. Causes and management of Hypercalcemia.
4. Urinary biomarkers for diagnosis of acute rejection.
5. Lung compliance.
6. Newer diagnostic tools for tuberculosis.

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

1. High flux haemodialysis – advantages and disadvantages.
2. Newer antiviral agents for hepatitis C infection.
3. ‗Steroid free' immunosuppressive protocol in renal transplantation.
4. Online haemodiafiltration – principle and advantages.
5. Vaccination of patients awaiting renal transplantation
6. Pathology of antibody mediated rejection.
7. Broncho-pleural fistula
8. Lymphnode TB
9. Appriasal of RNTCP
10. Assessing quality of life in COPD
11. Diagnosis of acute lung injury
12. Impact of air pollution on lung health

GASTROENTEROLOGY & ORTHOPAEDICS

PAPER PA-12 - GASTROENTEROLOGY & ORTHOPAEDICS

NAME OF THE SUBJECT PAPER	**: GASTROENTEROLOGY & ORTHOPAEDICS**
DURATION OF THEORY CLASSES	**: 80 HOURS**
DURATION OF TUTORIAL SESSION	**: 32 HOURS**
THEORY EXAMINATION	**: 100 MARKS (80U+ 20 IA)**
DURATION OF THEORY EXAMINATION	**: 3 HOURS**
PRACTICAL EXAMINATION	**: NO**
YEAR IN WHICH SUBJECT PAPER IS TAUGHT	**: III YEAR**

COURSE DESCRIPTION

The course is designed to assist students to acquire the knowledge about Gastroenterology, gives a science-based study of the pharmacology, cell biology, physiology & pathology of the gastrointestinal tract.The course is designed to assist students to acquire the knowledge about Orthopedics which is a field of medicine that is connected with specialists dealing with conditions involving the musculoskeletal system. In this field of medicine uses both non-surgical and surgical means for treating congenital disorders,tumors, infections, degenerative diseases, sport injuries and musculoskeletal trauma. The goal of this course is to address the outpatient care of common musculoskeletal problems by primary care providers.

OBJECTIVES

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

1. Manage of Pediatric Gastroenterology and Hepatology related problems
2. Develop the ability to effectively educate parents and their hospitalized children about the diagnosis, treatment plan and prognosis.
3. Understand and request appropriate use of surgical therapy in managing patients with acute gastrointestinal and liver disease, e.g., for the timely management of the surgical complications of inflammatory bowel disease.
4. Understand and provide adequate nutrition to patients including use of nasogastric or nasoduodenal tube, gastrostomy tube placement and peripheral/central hyperalimentation.

5. Communicating and counseling patients and their parents.
6. Continue to develop procedural skills in caring for the more ill pediatric inpatient.

PROGRAM OUTCOMES

PHY-PO 1: Performs the duty as a Physician assistant mastering computer application with good written and communication ability and also skilled at computer applications including E- library.

PHY-PO 2: 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.

PHY-PO 3: Understanding the structure and functions of different organs in normal human body

PHY-PO 4: To learn the general Biochemistry, Microbiology and Pathology, gaining expertise in Clinical Laboratory practices.

PHY-PO 5: To make students assist anesthesiologist during administration and monitoring of anesthesia including cardiopulmonary resuscitation.

PHY-PO 6: To make students understand the pharmacological principles pertaining to the drugs used in clinical practice.

PHY-PO 7: To make students participate and coordinate emergency resuscitative measures in acute surgical situations including trauma.

PHY-PO 8: To make students participate in conduct labour and manage obstetrics and gynecological emergency situations.

PHY-PO 9: To make students efficiently in handling Pediatrics and Geriatrics related diseased conditions and treat accordingly.

PHY-PO 10: To make students in assisting super specialtysurgeries like cardiothoracic vascular surgery, Neuro surgery, urology, Orthopedics and endoscopic procedures.

PHY-PO 11: To make students in providing primary care services including performing examinations, differential diagnosis and routine monitoring in various outpatient departments.

PHY-PO 12: To identify various life style disorders and with due counselling & 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**:**

GAST & ORT CO -1: Learn relevant applied anatomy and physiology of GIT system.

GAST & ORT CO -2: Learn & practice GIT and orthopedic disorders.

GAST & ORT CO -3: Learn & practice diagnostic procedures in GI endoscopy, colonoscopy,laparoscopy, liver biopsy, retrograde cannulation of the hepatic and pancreatic ducts.

GAST & ORT CO -4:Learn & practice surgical procedures of orthopedics.

COURSE CONTENT

UNIT	TITLE	THEORY+ TUTORIAL (80+32) HOURS
I	**A. Clinical gastroenterology** • Basics • functions and physiology of defecation **B. Preventive gastroenterology** • Obesity • GI disorders • Constipation • diarrhea and • dysentery	**15+ 5**
II	**A. Endoscopy:** • Surgical asepsis and hygienic endoscopy room • preparation of sterile field – • preparation of tables, • Equipment, instruments for the procedure • giving oral an aesthetic agent, • transfer and positioning of the patient, • care of the room before, during and after the endoscopy procedure, • special precautions in handling patients with sepsis, • blood borne infection – • Hepatitis B, HCV, HIV etc., • cleaning and disinfection, terminal disinfection, **B. Basic endoscopy unit** • forward viewing • single channel and double channel endoscopy • specific instruments used in endoscopic and colonoscopy	**15+ 5**

	procedures.	
III	**A. Orthopedics** • Basics • ossification of bones of the limbs for age determination • X-rays of bones • Process of repair of bone **B. Infections** • Osteomyelitis • tuberculosis, • mycetoma. • Metabolic diseases – • rickets, osteomalacia, osteoporosis, hyperparathyroidism **C. Tumors** • Primary • Osteosarcoma • Osteoclastoma • Ewing's sarcoma • Chondrosarcoma and Secondary tumors **D. Arthritis** • Rheumatoid • Osteo arthritis • Ankylosing spondylitis	**20+10**
IV	**Fracture** • Definition • classification, • management, • fracture healing, • delayed union • open fractures, • management of fracture clavicle,shaft of humerus and dislocation of shoulder. • Classification of injuries around the elbow and management of supracondylar fracture and dislocation of elbow, • Monteggia fracture dislocation and fracture of both bones of forearm, • Volkmann's ischemic contracture, • fracture lower end of radius, scaphoid and metacarpal fracture. • Fracture of pelvis and dislocation of hip, • fracture neck of femur, trochanter, shaft of femur tibia, fibula and metatarsal.	**15+6**
V	**A. Internal derangements of knee** • injuries of ankle and foot	**15+6**

	• amputations **B. Congenital malformations** • CTEV • Torticollis • CDH • Pseudoarthrosis • Disorders of hip • Coxavara • Perthes disease. • Deformities and disorders of the spine Blood transfusion	

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

- Apley & Solomon's System of Orthopedics and Trauma, Ashley Blom, David Warwick, Michael Whitehouse, Productivity Press, 10th edition.
- Watson-Jones Fractures and Joint Injuries, J. N. Wilson, Elsevier Health - INR, 7th Edition
- Essential Orthopedics (Including Clinical Methods), Maheshwari, Vikram A, Mhaskar, JAYPEE, 6th Edition
- Handbook of Fractures, Kenneth J Koval, Joseph Zuckerman, Wolters Kulwer Health, 5th Edition
- Manual on Clinical Surgery, Dr.S.Das, 14th Edition
- Clinical Orthopedic Examination, Ronald McRae, Churchill Livingstone, 6th Edition
- Natarajan's Textbook of Orthopedics and Traumatology, Natarajan, Wolter Kluwer, 8th Edition
- Textbook of Orthopedics includes clinical examination methods in Orthopedics, John Ebenezer, JAYPEE, 5th Edition
- Rockwood and Green's Fractures in Adults: Volume two, Rockwood and Green's, Lippincott Williams & Wilkins, 7th Edition
- Turek's Orthopedics principles and their applications, Anil K. Jain, Books Wagon, 7th Edition.
- Davidson‘s Principles and Practice of Medicine - Stuart Ralston, Ian Penman – Elsevier - 23rd EDITION
- Macleod‘s Clinical examination - J. Alastair Innes – Elsevier - 14th
- Medical Pharmacology - Padmaja Uday Kumar – CBS - 5th Edition

Blueprint for Third Year - PAPER PA-12 - GASTROENTEROLOGY & ORTHOPAEDICS

UNIT	SYSTEMS	WEIGHTAGE %	MARKS ALLOTED (TOTAL 80)	LAQ (2 out of 4)	SAQ (5 out of 6)	VSAQ (10 out of 12)
I	A. Clinical gastroenterology	15	12	1*		1
	B. Preventive gastroenterology				1	1
II	A. Endoscopy	23.75	19	1		1
	B. Basic endoscopy unit				1	1*
III	A. Orthopedics	30	24	1*		1
	B. Infections				1	1
	C. Tumors					1+1*
	D. Arthritis				1	1
IV	Fracture	16.25	13	1		1
V	A. Internal derangements of knee	3.75	3		1*	1
	B. Congenital malformations	11.25	9		1	1
		100	80			
*Note: * represents question of choice*						

- 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 of 4)
  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 = 100 mark

PAPER PA-12 - GASTROENTEROLOGY & ORTHOPAEDICS
MODEL QUESTION PAPER

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

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

1 .a) Discuss the role of probiotics in gastrointestinal and liver disorders.

(OR)

b) Describe etiopathogenesis and management of biceps tenson rupture.

2. a) Discuss role of stem cell in orthopedics.

(OR)

b) Discuss management of Radial club hand.

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

1. Hepatic veno – occlusive diseases.
2. Classification of colonic polyps.
3. Structure and functions of human proton pump.
4. Normal gut microbiota and its role in gut immunity.
5. Anatomy, clinical presentation and diagnosis of dieulofoy‘s lesion of GIT.
6. Recent advances in management of severe acute pancreatitis.

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

1. Uses of suture anchor in orthopedics
2. Idiopathic ulcerative colitis
3. Tumor markers in orthopedics
4. Ewing‘s sarcoma
5. What is arthritis?
6. Define osteomyelitis.
7. Classify the types of injury.
8. What is metacarpal fracture?
9. What is Ewing‘s sarcoma?
10. What is Rheumatoid arthritis?
11. Mention the disorders of hip.
12. What is torticollis?

DISCIPLINE ELECTIVE – III YEAR

B.SC. PHYSICIAN ASSISTANT
DISCIPLINE ELECTIVE I -TRANSGENDER HEALTHCARE

NAME OF THE SUBJECT PAPER : TRANSGENDER HEALTHCARE

DURATION OF THEORY CLASSES : 64 Hrs.

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

PRACTICAL EXAMINATION : NIL

DURATION OF THEORY EXAMINATION : 1 1/2 Hrs

SYLLABUS

UNIT I:

Anatomy

a. Anatomy of Reproductive system relevant to intersex condition including fetal development: Introduction to terminologies about Sex & Gender. LGBT, INTERSEX, Chromosomes, Fetal reproductive system development etc.
b. Alteration in disease: differences in sex development (NOT TO USE TERM "DISORDERS OR DISEASES")
c. Application & implication for health care professionals: care of Intersex child

Physiology

d. Physiology relevant to transgender people: Cross hormone use & it's physiological effects in Transmen & Transwomen.

Biochemistry

e. Hormone therapy in transgender people - investigations & interpretation of serum hormone levels in males & females. Targeted hormone levels in Transmen & transwomen.

UNIT II:

Physician assistant foundation:

a. LGBTQI health concepts: needs, health care discrimination, inclusive behaviour
b. Code of ethics & professionalism: declaration of inclusive health care, non-discriminatory policies for LGBTQI, confidentiality and consent.
c. Hospital admissions & discharge: using gender neutral terminologies verbally & document wise.
d. Communication with people from transgender community:
i. Terminologies: sex, gender, transgender, transsexual, transgender community, Transgender culture, coming out, homosexuality, homophobia, transphobia. Do's & don't while communicating with Transgender patients
e. Medicolegal issues: NALSA judgement, Decriminalization of consensual same sex relationship (section 377 removal), Transgender protection of rights act/ bill (2019).
f. Health assessment:
a) History taking:
i. Putting Patient at ease

ii. Identity confirmation
iii. Partner confirmation (optional)
iv. Other systemic illness & cancer related history
v. Obesity
vi. Surgical history
vii. Mental health history, substance abuse
viii. Allergies & medications (include hormones), related side effects
ix. Family history, social supports

b) Medical conditions affecting transgender people –

i. Non- communicable diseases like diabetes, hypertension, renal failure, stroke, cancers

ii. Communicable diseases – Sexually transmitted diseases including HIV.

g. Equipment needed:
i. PAP smear
ii. Prostate examination procedure
iii. Examination room with due privacy

h. Meeting needs of Perioperative Transgender patients
i. Understanding various surgical gender affirmative procedures in transgender peoples.
ii. WPATH guidelines: presurgical requirements
iii. Pre, intra, postoperative care of all surgical procedures (genital / Non-genital)
iv. Isolation of Transgender patients, gender neutral toilets.
v. Wound care, pain management.
vi. Postoperative complications - Genito-urinary, malignancies

UNIT III: Psychology & Sociology

PART A: Psychology

a. Recent terminologies: gender dysphoria, change to gender incongruence, theories of transgenderism.
b. Harmful Psychiatry practices to LGBTQI
c. Mental health issues selective to LGBTQI
d. Good mental health practices for LGBTQI
e. Psychological assessment of a Transgender patient

PART B: Sociology

a. LGBTQI Terminologies: Basic to advanced- gender, gender identity, gender expression, sex, Intersex, differences in sex development, sexual orientation, lesbian, gay, bisexual, differences in sexual development, MSM, WSW, cis-gender, transgender, MTF, FTM, gender dysphoria, gender incongruence, gender reassignment surgery, transsexual, queer, pansexual, drag, genderqueer, Trans*, heteronormativity, coming out
b. Transgender demographics in India
c. LGBT parents, LGBT family structure
d. Cultural diversity of Transgender people in India.
e. Health care barriers / discrimination: homophobia, transphobia, heterosexism: Institutional policy disclosure
f. Access to legal identity change for a Transgender person.
g. LGBTQI related human rights & laws in INDIA.

UNIT IV: Pharmacology & Genetics:

PART A:

a. Hormone replacement therapy in Transgender patients & gender non-conforming children.
b. Physiological effects.
c. Adverse reactions & risks: cancer, dyslipidemia, cardiovascular, skin, hyperprolactinemia, osteoporosis, thromboembolism, need of breast & cervical cancer screening.
d. Medical diseases & hormone therapy.
e. HIV & other STI medications: drugs, doses, common side effects, treatment therapy.

PART B:

a. Intersex: Differences in development conditions.
b. Parental counseling issues in Intersex children.
c. Medical & surgical treatment in Intersex conditions.

UNIT V: Community health in Transgender peoples:

a. Determinants of health:
i. Transgender culture, taboos, family structure, spirituality, education, occupation, economical status, demographics.
ii. LGBT lifestyle, sexual life.
iii. Workplace & LGBTQI.
b. Management of communicable diseases:
i. HIV & AIDS
ii. STI
c. Family health & nursing:
i. Assisted reproduction in LGBT
ii. Pre-Hormone therapy counseling for reproduction: sperm, ovum banking
iii. Adoption, surrogacy & LGBT

UNIT VI: Multispecialty care:

a. Geriatrics & LGBT health frameworks:
i. Life course framework
ii. Minority stress model
iii. Intersectionality
iv. Social ecological model
b. Misconceptions of health care providers about the community:
Understanding misconceptions of health care providers
Understanding life time stigma, discrimination & violence on LGBT
c. Palliative care in LGBT
d. Understanding Urogenital system issues:
i. Urinary tract infections
ii. Prostate in transwoman: Assessment, diagnosis & treatment of malignancy
iii. Other malignancies - Bladder, anal cancer
e. Obstetric care in Transgender men:
i. Barriers, physical examination of Transmen
ii. Cancer screening: breast, cervical
iii. Barrier protection, contraception, unwanted pregnancy, sexual practices
iv. Fertility & reproductive options: surrogacy, artificial insemination, adoption
f. Paediatrics& adolescent issues:

i. Gender & sexuality development in Paediatrics& adolescent population
ii. Mental health issues: bullying, suicide, substance abuse
iii. Children of LGBT Parents: social, mental issues

B.SC. PHYSICIAN ASSISTANT
DISCIPLINE ELECTIVE II -BASIC RADIATION BIOLOGY

NAME OF THE SUBJECT PAPER : Basic Radiation Biology

DURATION OF THEORY CLASSES : 64 Hrs

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

PRACTICAL EXAMINATION : NIL

DURATION OF THEORY EXAMINATION : 1 1/2 Hrs

LEARNING OBJECTIVES

- To gain fundamental knowledge regarding the interactions of radiation with the biological systems at molecular, cellular and systemic levels leading to death, cancer and mutation
- To understand mechanisms underlying biological responses of humans (and other living beings) to ionizing and non-ionizing radiation
- To gain insight into the various applications of radiation in biomedicine as well as approaches for protecting the biological systems from harmful effects of radiation

LEARNING OUTCOMES

- At the end of the course, students will learn about the biological effects of radiation with good understanding of the benefits and risks of using radiation in a variety of applications

SYLLABUS

Unit I

Fundamentals of radiation physics and radiation chemistry (6 h)

- Electromagnetic radiation and radioactivity
- Radiation sources and radionuclides
- Measurement units of exposed and absorbed radiation
- Interaction of radiation with matter, excitation and ionization
- Radiochemical events relevant to radiation biology
- Interaction of radiation with biomolecules: Nucleic acids, proteins, lipids and carbohydrates

Unit II

Cellular effects of radiation (12 h)

- Effects of ionizing and non-ionizing radiation on cells, DNA, chromosomes and membrane
- Clonogenic cell survival; Concept of RBE and OER
- Recovery from sub-lethal and potentially lethal damage

- Repair of radiation-induced DNA damage; various DNA repair pathways
- Division delay and cell cycle check points
- Radiation-induced cell death; apoptosis, necrosis and autophagy
- Radiation-induced mutation
- Low dose hypersensitivity
- Bystander effects
- Radiation-induced alterations in signal transduction

Unit III

1. Radiation-induced cytogenetic damage and biological dosimetry (9 h)

- Radiation-induced cytogenetic damage; Chromosome aberrations (CA) and micronuclei formation (MN)
- Dosimetry using CA, MN and mutation assays
- Biomarkers of radiation exposure

2. Systemic effects of radiation (6 h)

- Acute, delayed and late effects of radiation (with particular reference to nervous system, gastrointestinal and hematopoitic syndrome).
- Radiation-induced carcinogenesis

Unit IV

1. Modification of cellular and systemic responses to radiation (6 h)

- Protection, mitigation and therapy of radiation damage
- Biological basis of ICRP recommendations
- Radio sensitization of tumors
- Tumor Physiology and Radiation Response
- Immune modulation and radiation response of tumors

2. Applications in Radiation Medicine (6 h)

- Radiation Therapy: External beam therapy, Brachy therapy and
- radiosurgery
- Therapeutic nuclear medicine
- Sterilization of medical products

B.SC. PHYSICIAN ASSISTANT
DISCIPLINE ELECTIVE III - PALLIATIVE CARE

NAME OF THE SUBJECT PAPER	**: Palliative Care**
DURATION OF THEORY CLASSES	**: 64 Hrs.**
THEORY EXAMINATION	**: 50 Marks (40 U + 10 IA)**
PRACTICAL EXAMINATION	**: NIL**
DURATION OF THEORY EXAMINATION	**:1 1/2 Hrs.**

COURSE DESCRIPTION

This virtual one-day course is designed to offer physicians, nurses, social workers and other clinicians the information and skills needed to provide high quality palliative care to patients with serious illnesses in a variety of practice settings. It addresses the assessment and management of current challenges in palliative care, including the physical, psychological, social, and spiritual/existential sources of suffering experienced by patients and their families.

LEARNING OBJECTIVES

Upon completion of this activity, participants will be able to:
Access and manage physical, psychological, social, and spiritual/existential sources of suffering for patients and their families dealing with serious illnesses or towards the end of life

- Develop practical strategies for discussing patient fears, hopes, goals, and wishes for care in the face of serious illness and at the end of life, including balancing hope and honesty in discussing treatment options and dealing with the ethical, psychosocial and spiritual issues that arise
- Improve the access to quality palliative care for all people with serious illness regardless of setting, diagnosis, prognosis or age
- Describe key issues and principles of pain management with opioids, including equianalgesic dosing, common side effects, addiction, tolerance, and dependence

LEARNING OUTCOMES

- Interactive learning formats include: Q&A, panel presentations, and case-based discussions and ask the expert sessions.
- The course is designed to change both learner competence and performance in practice for primary and specialty palliative care practitioners.

SYLLABUS CONTENT

UNIT I
Basic Principles

- Definitions of palliative care; general palliative care; specialist palliative care
- Evolving nature of palliative care over the course of illness
- Re-adaptation and rehabilitation
- Personal qualities and attributes of palliative medicine

UNIT II

Physical Care

- Initial Assessment – detailed history and examination
- Management of life limiting, progressive disease
- Management of vaginal discharge and bleeding
- Diagnosis of rectovaginal, rectovesical and vesicovaginal fistulae
- Management of Urgency and dysuria/anuria

UNIT III

Psychosocial care

- Social and Family Relationships
- Communication with patients and relatives
- Psychological responses of patients and carers to life-threatening lllness and loss
- Attitudes and responses of doctors and other professionals
- Patient and family finance

UNIT IV

Culture, language, religion and spirituality

Ethics

- Theoretical ethics, applied ethics

Legal framework, teamwork and management

DEC III – PALLIATIVE CARE
MODEL QUESTION PAPER

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

(A) Short Answer (Answer any FIVE) **(5x6=30)**

1. Indications and importance of providing palliative care
2. Principles of palliative care
3. Distinguish between palliative care and hospice care
4. Non pharmacological management for pain under palliative care
5. Psychosocial factors influencing palliative care

(B) Very Short Answer (Any FIVE) **(5x2=10)**

1. Signs of physiological death
2. Stages of palliative care
3. Definition of palliative care
4. Rehabilitation verses palliative care
5. Palliative care under hospital settings
6. Phases of rehabilitation
7. Pharmaco therapy for pain for patients under palliative care
8. Importance of palliative care

B.SC. PHYSICIAN ASSISTANT
DISCIPLINE ELECTIVE IV - BASIC AIRWAY MANAGEMENT

NAME OF THE SUBJECT PAPER	**: Basic airway management**
DURATION OF THEORY CLASSES	**: 64 Hrs.**
THEORY EXAMINATION	**: 50 Marks (40 U + 10 IA)**
UNIVERSITY PRACTICAL EXAMINATION	**: NIL**
DURATION OF THEORY EXAMINATION	**: 1 1/2 Hrs.**

Course Description
They will get knowledge about fundamental skills required for Airway management, among the practiced in clinical postings and manage the respiratory, medication and high quality on training based on international standardized guidelines.

Learning objectives
- They will be trained well in airway compromise, and management of upper airway obstruction
- Understand the difference between airway management and Rescue breathing
- Learn the techniques needed to perform Rescue breathing.

SYLLABUS CONTENT

1. Indications for artificial airways (20 HRS)
- Relieving airway obstruction
- Secretion removal
- Protecting the airway
- Positive Pressure Ventilation

2. Selecting and establishing an artificial airway (10 HRS)
- Nasal airways
- Pharyngeal airways
- Tracheal airways

3. Airway clearance techniques (10 HRS)
- Airway suctioning
- Bronchoscopy

4. Airway maintenance (20 HRS)
- Securing the airway and confirming placement
- Providing adequate humidification
- Minimizing nosocomial infections
- Providing cuff care
- Facilitating clearance of secretions
- Troubleshooting airway emergencies

5. Extubating (10 HRS)
- Indications
- Procedure

- Post extubating care & complications

6. Oxygen Therapy (10HRS)

- Sources of oxygen for therapy
- Storage of oxygen
- Oxygen delivery systems
- Hazards of oxygen
- Modes of O2 therapy
- Monitoring O2
- Delivery systems (in vitro)
- Blood gases in patient (in vitro.)
- Pulse oximetry
- Economic issues

TEXT BOOKS

1. Egan's Fundamentals of Respiratory Care – Robert L. Wikins, James K Stoller, Craig L Scalan (Mosby)
2. Critical Care Secrets: Parsons, Wiener-Kronish, Jaypee Brothers

DEC – BASIC AIRWAY MANAGEMENT
MODEL QUESTION PAPER

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

(A) Short Answer (Answer any FIVE) **(5x6=30)**

1. On a short of breath, you encounter a patient in respiratory failure due to pulmonary edema. What other factors should you assess to determine how difficult an intubation will be?
2. What are the two most common ways people make DL intubations harder than they need to be?
3. What are usual reasons to incubate that you will encounter basically three classes?
4. What percentages of intubation are considered difficult in emergency settings?
5. How will you estimate the tube size to intubation this child?
6. How deep would you place the tube?

(B) Very Short Answer (Any FIVE) **(5x2=10)**

1. Write the name of 3 types of supra ventricular tachycardias.
2. Write the site and manner of hands placement while doing CPR in an adult.
3. What should be the compression to Ventilation ratio while providing CPR to an adult?
4. What should be the compression rate while providing CPR to an adult?
5. What should be the depth of chest compressions while providing CPR to an adult?
6. After how many minutes of providing chest compression, respiratory therapist should be changed to avoid fatigue?
7. While providing CPR, if there is a palpable pulse, but no spontaneous breathing, what should be the rescue breathing rate?
8. During CPR, with external chest compression, approximately what fraction of normal cardiac output can be usually produced?

B.SC. PHYSICIAN ASSISTANT
DISCIPLINE ELECTIVE V - BASIC ASSESSMENT AND SUPPORT

NAME OF THE SUBJECT PAPER : BASIC ASSESSMENT AND SUPPORT IN INTENSIVE CARE

DURATION OF THEORY CLASSES : 64 Hrs

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

UNIVERSITY PRACTICAL EXAMINATION : NIL

DURATION OF THEORY EXAMINATION : 1 1/2Hrs

COURSE DESCRIPTION

They learn the knowledge about the intensive care specialties and practical and management of critically ill patients, injury patients and general surgeons.

LEARNING OBJECTIVES

- Aim to provide skills and knowledge support and manage the care of critically ill patients
- Understand the basic life support drugs, and advance cardiac life support.

SYLLABUS CONTENT

1. Mechanical ventilation - noninvasive and invasive(60HRS)

- Basic concepts
- Mechanics of ventilation
- Work of breathing
- Indications
- Humidification of gas
- Ventilator settings
- Timings -Inspiratory, Expiratory, Inspiratory hold
- Flow
- Tidal volume
- Pressure
- Peak
- Plateau
- PEEP
- "POP-OFF"
- Pressure support
- Proximal airway vs distal
- $Fi0_2$
- Modes of ventilation
- Non-Invasive CPAP, BiPAP
- Invasive modes-Controlled, Assisted, SIMV, APRV, Pressure Support

- Alarm settings
- Care of ventilator &tubing's
- Sterility
- Weaning
- concepts
- Humidifier
- Types
- advantages and disadvantages
- Inhaled drug therapy
- Nebulization
- different types
- Advantages & disadvantages
- MDI with Spacer

2. Care of patients on ventilator (20 Hrs.)

- Ensuring proper placement of tube
- Cuff pressure
- Tracheobronchial hyena, suctioning
- Humidification, Chest physio
- Ventilator settings
- Monitoring ventilatory parameters

Text books

- The ICU Book – Paul L Marino (Lippincott, Williams & Wilkins)
- Ventilation / Blood Flow & Gas Exchange – John B West (Blackwell Scientific Publications)
- Washington Manual of Critical Care

DEC –BASIC ASSESSMENT AND SUPPORT IN INTENSIVE CARE
MODEL QUESTION PAPER

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

(A) Short Answer (Answer any FIVE) **(5x6=30)**

1. Explain the indications and modes of mechanical ventilator and its complications
2. Discuss the various methods of providing oxygen therapy for a hypoxic patient
3. Basic life support in pregnancy.
4. Automated external defibrillator.
5. Management of foreign body air way obstruction in a infant.

(B) Very Short Answer (Any FIVE) **(5x2=10)**

1. Adrenaline
2. Ventricular tachycardia
3. Sodium bicarbonate
4. Amiodarone
5. Oxygen therapy
6. Classification of anti-arrhythmic drugs
7. Causes of acute renal failure
8. Discuss the reversible causes of cardiac arrest

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,	LAQ

	e) relations, f) Tributaries, g) communications.	
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 –	LAQ

	a) Definition, b) location, c) shape, d) measurement, e) external features, f) Positions, g) relations, h) supports, i) blood supply.	
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 /lron
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- MEDICINE & PHARMACOLOGY

Unit 1 - INTRODUCTION TO MEDICINE

3 Marks

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 Pulsusparadoxus
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 Marks

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 counselling

3 Marks

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 Marks

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 Marks

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-Schoenleinpurpura?
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 NeuromyelitisOptica.
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 GuillainBarre 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 subacutesclerosingpanencephalitis?
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 Gravesophthalmopathy?
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 and minor criteria and describe the interpretation.
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 Acutedyspnea
2. Mention 4 causes of Chronicdyspnea
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 acanthosisnigricans?
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 megaloblasticanemia 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 tropicalsprue.
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-hemolytichyperbilirubinemia
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 poststreptococcalglomerulonephritis.

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.
13. Common causes, clinical features and management of UTI.

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 struvitestone.
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.
4. Status asthmaticus clinical features and management
5. Status epilepticus clinical features and management

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.

PAPER 6 – PAEDIATRICS

UNIT-1: Growth and development, current pediatric national programmes

10 Marks

1. Define short stature? What are the causes of short stature? Write the investigation work up for short stature and discuss its management?

6 Marks

1. Factors affecting growth of a child? What are the laws of growth?
2. What is the different growth charts used in india. How will you calculate mid parental height?
3. What is the difference between height and length and how do you measure them? What is Frankfurt plane?
4. Write 4 causes of microcephaly and macrocephaly?
5. What are the 4 domains of developmental milestones? Write 2 maximum milestones achieved by a 3 year old child?
6. What are breath holding spells? What are its types? Management ?
7. ICDS

3 Marks

1. What is the expected weight and height of 5 year old child?
2. How many fontanels are there at birth? What are present clinically?
3. What are the different shapes of skull?
4. What is developmental quotient?
5. What is craniosynostosis?
6. What is MUAC and how will you measure it?
7. Interpretation of shakirs tape colour coding?
8. What are the age independent criteria for growth assessment? What are the national programmes for nutrition in india?

UNIT – 2: Breastfeeding and complementary feeding, vitamins and micronutrients, Protein energy malnutrition

10 Marks

1. What is exclusive breast feeding? What are the maternal, infant and social benefits of EBF? What is baby friendly hospital initiative? What are the contraindications of breast feeding?

6 Marks

1. What is complementary feeding and what are the feeds to be complemented with breast feeding?
2. Write 10 differences between marasmus and kwashiorkar?
3. What are the criteria for SAM (severe acute malnutrition)? Write the 10 steps in managing SAM child?
4. Write notes on hypervitaminosis A?
5. WHO classification of vitA deficiency?
6. Clinical manifestations of rickets? Investigations and management of rickets
7. Clinical features of scurvy?
8. Complications in SAM child?
9. What are the grading of kwashiorkar and marasmus?
10. What are fat and water soluble vitamins? Give examples for each?

3 Marks

1. Write 4 contraindications of breast feeding?
2. What is flag sign?
3. Role of zinc in diarrhoea?
4. What are probiotics and prebiotics? Give one example in each?

5. Write 4 anti infective properties of breast milk?
6. What is mid day meal programme?
7. Who are the beneficiaries of ICDS?
8. What is holiday segar formula?
9. Write 4 signs and symptoms of iron deficiency anemia?
10. What are the complications of non breast milk fed child?

UNIT-3 -Infectious diseases Neonatology
6 Marks
1. What is neonatal hyperbilirubinemia? What are the causes and types of hyperbilirubinemia?
2. What are the different treatment modalities of neonatal jaundice?
3. What is low birth weight? How do you classify low birth weight according to weight? What are the causes of low birth weight?
4. What is respiratory distress syndrome? Write the clinical features and management?
5. Write notes on transient tachypnea of newborn(TTN)?
6. What is early onset and late onset neonatal sepsis?
7. What are the neonatal reflexes present at birth?
8. What is incessant cry? What are the causes of incessant cry?
9. What is NEC? What are the causes and clinical features?
10. What is the normal cut off for passing urine and stool in newborns?
11. What is PUO? What are the causes of PUO? How will you investigate?
12. Write notes on enteric fever – clinical features and management?
13. Classification of dengue? Warning signs of dengue?
14. Management of severe dengue?
15. RNTCP criteria for investigating a child for tuberculosis?
16. What is extra pulmonary Tb? Give examples of it?
17. Write notes on scrub typhus?
18. Complications of enteric fever?
19. Write notes on HIV?
20. What are clinical features of measles? What are the staging in measles infection?
21. Categories of antitubercular treatment?
22. Prevention of HIV from mother to child?
23. What are the ways of preventing infections in paediatric ICU?
24. What are the infectious agents causing meningitis?
25. What is toxic shock syndrome?

UNIT-4 Disorders of respiratory system and cardiovascular system
6 Marks
1. What is NADAS criteria? What are the major and minor criteria? What is the interpretation?
2. What is cyanosis? Name four cyanotic and acyanotic heart diseases ?
3. What is congestive heart failure? What are the causes of CHF?
4. Clinical features of heart failure and its management?
5. What is the criteria for rheumatic heart disease? What are the major and minor criteria and its interpretation?
6. What is the prophylaxis and management of rheumatic heart disease?
7. What is dukes criteria for infective endocarditis? What is its management?
8. What are the 4 components of tetralogy of fallot?
9. What is cyanotic spell? How will you manage cyanotic spell?
10. What is dyspnea ?what is the NYHA classification?
11. What is community acquired pneumonia? What are the causative organisms? What are the clinical features?
12. What is pleural effusion? What are the clinical features and management?
13. Write short notes on empyema thoracis?
14. ARI control programme?

15. Notes on acute bronchioloitis?
16. Status asthmaticus?
17. What are the signs of respiratory distress? What are the conditions causing respiratory distress?
18. What is bronchiectasis and its clinical features?
19. What is nebulization? What are the different medications used in nebulization? What are all the conditions require nebulization?
20. Short notes on cystic fibrosis?

UNIT 5 Genitor-urinary system and hematological disorders
1. What is hematuria? What are the causes of hematuria? How will you investigate?
2. Short notes on acute glomerulonephritis?
3. Criteria for nephrotic syndrome and clinical features?
4. Management of nephrotic syndrome?
5. Difference between nephritic and nephrotic syndrome?
6. Predisposing factors and causes of urinary tract infections? How will you treat UTI?
7. What is urolithiasis? What are the predisposing factors for urolithiasis?
8. What is vesicouretral reflux? What are the clinical features?
9. What is phimosis? What is the management?
10. What are the secondary causes of nephrotic syndromes?
11. What is anemia? What are the classification of anemia?
12. What is physiological anemia of infancy?
13. What is iron deficiency anemia? What are the foods rich in anemia?What is the etiology?
14. Clinical features of IDA? Management of IDA?
15. Foods that increase and decrease the absorbtion of iron?
16. What is megaloblasticanemia? What are the presentation and management?
17. What is haemolytic anemia? What are the causes of haemolytic anemia? What are the lab parameters suggesting it?
18. What is haemophilia? Which factor is deficient in it? What are the clinical features?
19. Short notes on DIC?
20. Difference between leukemia and leukemoid reaction?

UNIT-6: Central nervous system and gastro intestinal tract disorders
1. lumbarpucture indications and contraindications?
2. What are the causes of convulsions in a child? What are the investigations to be done?
3. What is meningitis? What are the causes of meningitis? What are the clinical features of meningitis?
4. What is difference between simple and complex febrile seizures?
5. Short notes on status epilepticus?
6. What is Glasgow coma scale?
7. Difference between encephalitis and encephalopathy?
8. What is raised ICT? What are the signs of raised ICT? What are the measures to control it?
9. What is hydrocephalus? what are the types ? what are the clinical features?
10. Management of hydrocephalus?
11. Normal csf circulation and pathway?
12. What is AFP? What are the differential diagnosis of AFP? What is AFP surveillance?
13. What is cerebral palsy? Causes and types of CP? Discuss its management?
14. Neurocutaneous syndromes?
15. Duchene muscular dystrophy?
16. Gerd -gastro esophageal reflux disease?
17. Clinical features of hirschprung disease?
18. Notes on congenital hypertrophic pyloric stenosis?
19. What is diarrhoea? What are the types of diarrhoea?what are the etiological

agents?
20. Types of dehydration and its management?
21. ORS?
22. Cows milk protein allergy?
23. Write 5 causes of hepatomegaly and splenomegaly?
24. Short notes on neonatal cholestasis?
25. What is peptic ulcer disease? What are the types and clinical features? Discuss management ?
26. What isn upper GI bleeding? What are the causes and management ?
27. What is ascites ?what are the clinical features and management?
28. What is inflammatory bowel disease? Difference between crohns and ulcerative colitis?
29. What are the causes of acute abdominal pain?
30. What is liver function tests ?what are the parameters involved in it?

PAPER 7 – SURGERY, EQUIPMENTS & ANAESTHESIOLOGY

UNIT 1

6 Marks

1. Define suture materials? What are the types of suture materials?
2. Explain briefly about the types of abdominal incision.
3. Discuss briefly about the classification, signs & symptoms, management of Hemorrhage.
4. Briefly explain about any 3 types of Suture materials.
5. Write about the classification of Suture needles.
6. Explain about Gowning techniques.
7. Explain about Gloving techniques.
8. Write about the basic surgical instrument – with one comments on each.
9. What are the methods of tourniquet application?

3 Marks

1. Mention the uses of suture?
2. Define the term Anastomosis?
3. Define the term Dissection?
4. Define the term splitting?
5. Define the term ligation?
6. Mention the duties of Surgical Assistants.
7. Define endoscopic procedures?
8. Expand the following surgical procedures.

a) SSG b) MRM c) I&D d) CABG

9. Define surgical incision?
10. Mention the indication of tourniquet.

UNIT-2

6 Marks

1. Write short notes on DVT and its prophylaxis.
2. Explain about Dermoid cyst.
3. Write about Malignant melanoma.
4. Explain the classification of burns.
5. Write briefly about the Squamous cell carcinoma of oral cavity.
6. Explain briefly about the salivary gland tumors.
7. Write about the diagnosis, clinical features and surgical management of Varicose Vein.
8. Define wound? Write about the classification of surgical wound?
9. Mention the complication of wound healing.
10. General instructions for the wound dressings.
11. What are the factors affecting wound healing.

12. Mention the complication of pulmonary embolism.
13. Write short note on thyrotoxicosis.
14. Define pulmonary embolism- etiology, diagnosis, treatment and prevention.
15. Difference between acute abscess and ruptured aneurysm.
16. Write briefly about TB Lymphadenitis.
17. Mention the risk factors for development of surgical site infection.
18. What are the contraindications of thrombolytic therapy?
19. Write the Comparison of primary and secondary lymph edema.
20. Write about the classification of hand infection.

3 Marks

1. Define dermoid cyst.
2. Define sebaceous cyst.
3. Define carbuncle and mention its clinical features.
4. What is ARDS?
5. What is Reynaud's disease?
6. Differentiate between keloid and scar.
7. What is compartment syndrome?
8. Define cellulites? Mention the common sites.
9. What are the causes of cold abscess?
10. What are the instruments present in Suture tray?
11. What is the classification of aneurysm?
12. What is amoebic colitis?
13. What are the wound care methods?
14. Define thyroglossal cyst.
15. What is Ischial abscess?

UNIT-3

10 MARKS

1. Define peptic ulcer. Discuss briefly about the causes, diagnosis and management of complicated peptic ulcer.
2. Discuss the clinical presentation, investigation and management of Carcinoma stomach.
3. Discuss the staging, clinical features, diagnosis and management of Carcinoma breast.
4. Discuss the clinical features, diagnosis and management of urinary tract infection.
5. What is acute appendicitis? Discuss the clinical features, diagnosis and its management.

6 Marks

1. Write about the clinical features, diagnosis and treatment of fistula in ano.
2. Write about pyloric stenosis.
3. Methods of blood loss management.
4. What is the role of CT scan in abdominal trauma?
5. Explain benign prostatic hyperplasia.
6. Discuss briefly about the post operative care of surgical patients.
7. What are the advantages of minimal access surgery?
8. Write briefly about the fibroadenoma of breast.
9. Write short note on GERD.
10. What are the pre operative surgical checklists?
11. What is the pre operative care of a patient posted for major abdominal surgery?
12. Write a brief note on inguinal, umbilical and femoral hernia.
13. Write briefly about the pre and post operative care of tracheostomy patient.
14. Write about the congenital anomalies of head and neck.
15. Write about the tracheostomy surgical procedure.
16. Discuss the various types of incisions used in surgery of breast.
17. Differentiate between Extra Dural Hemorrhage and Sub Dural Hemorrhage.

18. Explain briefly about the classification of abscess.
19. Explain briefly about the classification of ulcer.
20. Write about the clinical examination of ulcer.
21. Write a short note on treatment of diabetic foot ulcer.
22. Explain Glasgow coma scale.

3 Marks

1. Write about ano rectal abscess.
2. Write about umbilical hernia.
3. Write about hiatus hernia.
4. Write about acute cholecystitis.
5. Write about the classification of jaundice.
6. What is laminoectomy?
7. What are the indications of tracheostomy?
8. What is epigastic hernia?
9. Mention the types of skin grafting.
10. Define urinary retention.
11. What are the ano rectal disorders?
12. What is BBH?
13. Write about ESWL.
14. Enumerate the surgical positioning.
15. Complication of positioning.
16. What is craniotomy and cranioplasty?
17. What are the types of aneurysm?
18. What are the common urological procedures?
19. What is the surgical step for circumcision?
20. Write any 2 difference between arterial and venous ulcer.
21. Define lymph edema.
22. Mention the causes of thromboplebitis.
23. Define grave's disease.

UNIT-4

10 MARKS

1. Describe the basic equipments needed for endotracheal intubations?
2. What is endotracheal intubation? What are the steps involved in techniques of intubation?
3. Adult – basic life support algorithm.

6 Marks

1. Discuss the ASA physical status classification.
2. Write about the NPO guidelines for elective surgery.
3. What are the indications for endotracheal intubation?
4. What are the common problems encountered in recovery room?
5. How do you confirm tracheal placement of ETT.
6. What are the complications of laryngoscopy and endotracheal intubation?
7. What are the components of IV line therapy? Mention the importance of each.
8. How will you sterile the anesthesiaequipments?
9. Explain briefly about the surgical safety checklist followed inside the OT?
10. Write ASA recommend monitoring for general and regional anesthesia?
11. Write about the criteria for the patient discharge from PACU (modified alders score) ?
12. Write about the functions of Boyle's machine.
13. What are the requirements of anesthesia breathing system?
14. What is laryngoscope? Mention its indications and types of laryngoscopes blades
15. Define face mask. Mentions its types and available sizes.
16. What are the indications of control venous access?
17. Write about the components of AMBU bag?

18. Preparation of emergency intubation tray?
19. What are the steps involved in surgical hand wash?
20. Mention the personal protective equipments and describe the role in infection control.
21. Write in detail about hospital waste segregations?
22. Pre-operative anesthesia safety checklist?
23. Differentiate between crystalloids and colloids.
24. Compositions of crystalloids.
25. Mention the equipments used in difficult airway patients with one comments on each.

3 Marks
1. Write about WTG Morton.
2. Write about august bier.
3. Mention the duties of the anesthetic team?
4. Mention the purpose of anesthesia?
5. Mention the common routes of drug administration.
6. Mention two common sites for monitoring IBP.
7. What are the available IV venflon sizes with color coding?
8. Name the two ideal sites for vein puncture?
9. Name any two induction and opioid drugs?
10. What are the available sizes of Ryle's tube with color coding?
11. Mention the triad of general anesthesia?
12. Draw ET tube and label its parts.
13. What are the available sizes of spinal needle with color coding?
14. Difference between spinal and epidural anesthesia.
15. Define breathing system?
16. Write short note on brain circuit?
17. Write about the JRM circuit?
18. Mention the indication of oropharyngeal airway.
19. Define an airway. With examples?
20. How to attach ECG electrodes?
21. Name the sites of measuring spo2?
22. Mention any two emergency drugs used in cardiac arrest?
23. Mention the indication for tracheostomy?
24. Define CSSD?
25. Define nosocomial infection?

PAPER 8 - OBSTETRICS AND GYNAECOLOGY

UNIT – 1: Introduction to Obstetrics and Gynaecology
6 Marks
1. Classify Gestational trophoblastic Neoplasia. Write a note on choriocarcinoma.
2. Diagnosis of molar pregnancy. What is the treatment of molar pregnancy
3. Vertical transmission of HIV.
4. Diameters of fetal skull.

3 Marks
1. Draw parts of uterus.
2. What is TORCH infection? List 2 effects in pregnancy.

UNIT – 2 : Obstetrics
10 MARKS
1. Classify Hypertensive disorders in pregnancy. Define pre-eclampsia. Discuss the clinical features and pathophysiology of pre-eclampsia [2+1+4+3]

2. Define Postpartumhemorrhage. List the causes of Postpartumhemorrhage .Mention the conservative treatment modalities for a tonic PPH[1+4+5]
3.Classify hypertensive disorders in pregnancy. List the causes of hypertension in pregnancy. Discuss in detail the management of eclampsia[2+3+5]
4.Define Antepartum hemorrhage. List the causes of antepartum hemorrhage. Tabulate the differences between abruption placenta and placenta previa[1+2+7]

6 Marks

1. Define ectopic pregnancy. Write a note on the risk factors of ectopic pregnancy.
2. Define Intrauterine death. Discuss the causes of Intrauterine death
3. Partogram
4. Define Caesarean section. Discuss the merits and demerits of LSCS
5. List the complications of forceps delivery
6. List pre requisites for operative vaginal delivery
7. List the types and causes of multiple pregnancy
8. Differentiate symmetrical and Assymetrical Intrauterine growth restriction
9. Enumerate the functions of placenta
10. Define Gestational Diabetes Mellitus. List the Risk factors for Gestational Diabetes Mellitus
11. Discuss the diagnostic tests for Gestational Diabetes Mellitus
12. Describe the indications of medical termination of pregnancy
13. Define placenta previa. Classify and list its clinical features
14. Differentiate true labour pain and false labour
15. Write a note on active management of third stage of labour.

3 Marks

1. Mention the sites for ectopic pregnancy
2.Mention the fate of ectopic pregnancy
3. Mention any 2 laboratory investigations in diagnosis of ectopic pregnancy
4. Mention 4 indications of ultrasound in Obstetrics
5. Enlist the drugs used for management of eclampsia
6. List 4 Assisted reproductive techniques
7.Define abortion and mention its types
8.Boundaries of vertex
9. What is Goodell’ssign
10.What Is Osiander’s sign
11.What is Hegar’s sign
12.Mention the signs and symptoms of first trimester
13.Define Premature rupture of membranes. List 2 causes.
14. Define Polyhydraminos. List 2 causes
15.DefineOligohydramnios. List 2 causes
16.List 4 indications for operative vaginal delivery
17.Define Respiratory distress syndrome & its causes in newborn
18.Diagnosis of Meconium aspiration syndrome
19. Define cephalohematoma
20. How to prevent Rh isoimmunisation?
21. Define precipitate labour
22. Define Puerperium
23.Define Lochia and classify
24.Stages of Labour
25. Define missed abortion
26.Define threatened abortion
27. List 2 contraindications of Methergine
28. APGAR SCORE

UNIT – 3 :Gynaecology
10 MARKS
1.Define Utero vaginal prolapse. List the risk factors for Utero vaginal prolapse. Classify and mention the various grades of UV prolapse[1+4+3+2]
2. Define infertility. List the causes of female infertility. How will you evaluate a infertile couple?[1+4+5]

6 Marks
1. Define endometriosis. Discuss various theories of endometriosis.
2. Define adenomyosis. Write the clinical features.
3. Discuss the risk factors and protective factors for endometrial hyperplasia
4. Discuss in detail about pap smear
5. Describe the clinical features of fibroid uterus.
6. Evaluation of female infertility
7. Dermoid cyst
8. Semen analysis

3 Marks
1. List 4 causes of menorrhagia
2. Define menopause. List 4 symptoms of menopause
3. Define Amenorhoea. List 2 causes
4. List 4 causes of secondary amenorrhoea
5.List 4 causes of infertility
6.List the types of Endometrial hyperplasia
7.DefineLeucorhea and describe the character of discharge.
8.List 4 common causes of abnormal vaginal discharge
9.Define menorrhagia and dysmenorrhea
10.Define infertility
11.Definepost menopausal bleeding. List 2 causes.
12. List 4 screening tests for cancer cervix
13. List 2 causes of male infertility
14. Mention the criteria for PCOD

UNIT - 4: Urinary system and contraception
6 Marks
1. Describe the various contraceptive methods and describe the mechanism of action of Intra uterine contraceptive device

3 Marks
1. Define pathological jaundice
2. Mention 2 causes of pathological jaundice
3. List the types of birth injuries
4. What is emergency contraception. List two emergency contraceptives
5. List the types of urinary incontinence
6. List 4 causes of neonatal jaundice
7. List 2 complications of neonatal jaundice.

III YEAR

PAPER – 9 : CARDIOLOGY & CARDIAC SURGERY

UNIT 1 - BASICS

10 Marks

1. Describe the cardiac cycle.

6 Marks

1. Conducting system of the heart.
2. Examination of jugular venous pulse and its importance.
3. Cardiac Cycle.
4. Cyanotic spell.
5. AV node
6. Arterial smooth muscle cell in health and disease.
7. Sinus node dysfunction.

3 Marks

1. Cardiac output.
2. Cardiac tamponade.
3. JVP
4. Pacemakers.
5. Coronary artery anatomy.
6. Types of pulse.
7. Heart sounds.
8. Mitral valve.
9. Murmur.
10. SA node
11. Write the mechanism of blood circulations.
12. What are the valves in heart?

UNIT 2- CARDIOVASCULAR DISEASES

10 Marks

1. What is Cardiac Arrest and sudden Cardiac death? State its causes, etiology and immediate management of cardiac arrest.
2. Pathophysiology of atherosclerosis and its risk factors and prevention.
3. Systemic Hypertension, how do you diagnose it? What are its adverse effects on other systems?
4. Tetralogy of Fallot, its clinical manifestation and its management.
5. Diagnostic tools for heart disease and prevention of heart disease.
6. Etiology of Coronary Artery Disease. Discuss the Clinical features, Diagnosis and Management of Acute Myocardial Infarction.
7. Causes of Heart Failure, signs and symptoms and Medical Treatment of heart failure.
8. Discuss the Etiology, pathogenesis, clinical features and treatment of Rheumatic heart disease.
9. Classification and complications of hypertension.
10. Discuss the clinical presentation and management of Acute Myocardial Infarction.
11. Discuss the structural Anatomy, symptoms, diagnosis and treatment of Tetrology of Fallot.

6 Marks

1. Causes of chest pain and how will you identify ischemic cardiac pain?
2. Management of cardiac arrest.
3. Pacemakers.

4. Infective endocarditis.
5. Aortic aneurysm.
6. Mitral Stenosis.
7. Tetralogy of Fallot
8. Atrial septal defect
9. Cardiac Troponin
10. Multiple Sclerosis.
11. Patent DuctusArteriosus.
12. Rheumatic heart disease.
13. Cardiac tamponade.
14. Congenital cyanotic heart disease.
15. Dilated Cardiomyopathy.
16. Burger's disease (ThromboAngitisObliterans).
17. Atrial septal defect – types and management.
18. Left heart failure.
19. Hypertensive Emergencies.
20. Right heart failure.
21. Acute Rheumatic fever.
22. Classification of congenital heart diseases.
23. Diagnosis of Coronary Artery Disease.
24. Complete Heart Block.
25. Angina pectoris.
26. Types of cyanosis.
27. Pulsusparadoxus.
28. Pulmonary oedema.
29. Polymorphic ventricular Tachycardia

3 Marks

1. Clinical features of aortic regurgitation.
2. Wernicke – Korsakoff syndrome.
3. Torsade's de pointes (ventricular tachycardia).
4. Clinical features of acute coronary syndrome.
5. Embolization.
6. Atherosclerosis
7. Burger's disease
8. Name 2 Cyanotic heart disease
9. Inferior wall myocardial infarction.
10. Thrombi angiitisObliterans.
11. Atrial septal defect.
12. Symptoms of Right heart failure.
13. Patent DuctusArteriosus.
14. Cardiac myxomas.
15. Constrictive Pericarditis.
16. Ventricular ectopic beats
17. What is blood pressure?

UNIT 3 – PREVENTION OF HEART DISEASES

6 Marks

1. Importance of Echocardiography
2. Echo Cardiogram.
3. Cardiac Catheterization.
4. Activated Clotting Time (ACT).
5. Tread mill test.
6. Classification of anti-hypertension drugs.
7. Trans-esophageal Echocardiogram.
8. Atrial Fibrillation.
9. Holter test.

10. Importance of TMT.
11. Cardiac markers.
12. Electro cardiograph in Electrolyte abnormalities.
13. Coronary stents. Advances in coronary stent system.
14. Exercise electro Cardio graphic testing. Evaluation of myocardial viability.
15. What are the cardiac biomarkers?
16. Echocardiography evaluation of RV function
17. End of life indication in permanent pacemaker.

3 Marks
1. Cardiac biomarkers.
2. How to assess heart murmur.
3. HOLTER ECG
4. Prolonged QT.
5. TGA (Transposition of great arteries).
6. Atropine.
7. Cardiac catheterization.
8. Draw and mark a normal ECG.
9. Atrial fibrillation management.
10. Protamine Reaction.
11. Modified Ultrafiltration.
12. What are diagnostic tools used to detect heart diseases.
13. What is PPI?
14. ECG standardization
15. Flutter waves
16. How to prevent the heart disease?

UNIT 4- CARDIAC SURGERY
10 Marks
2. Discuss the structural Anatomy, symptoms, diagnosis and surgical treatment of Tetrology of Fallot.
3. Discuss the structural anatomy, presentation, diagnosis and treatment of Transposition of Great Arteries.
4. Signs, symptoms, diagnosis and management of rheumatic mitral stenosis.
5. Discuss the pathogenesis, clinical features and surgical treatment of Rheumatic heart disease.
6. Cardio pulmonary resuscitation

6 Marks
1. Aortic aneurysm
2. Atrial septal defect
3. Patent DuctusArteriosus.
4. Pulmonary thromboembolism.
5. Coronary perfusion.
6. Anatomy of long saphenous vein.
7. Complications after CABG surgery (Coronary Artery Bypass Surgery).
8. Surgical management of coronary artery disease.
9. Coronary Artery Bypass Grafting.
10. Components of CPB
11. Myocardial perfusion contrasts enhanced echocardiography
12. Post-operative Atrial fibrillation

3 Marks
1. Embolization.
2. CABG.
3. Arterial blood gas.
4. Acute limb Ischemia.

5. Blalock- Taussigshunt (BT shunt).
6. Anticoagulation during Cardiopulmonary Bypass.
7. Adrenaline.
8. Pulmonary Artery Banding.
9. Anatomy of Aortic Valve.
10. Deep vein thrombosis.
11. Antiplatelet.
12. Pulmonary oedema.
13. Sciatica.
14. Low molecular weight heparin.
15. TGA (Transposition of great arteries).
16. Aortic root.
17. What is coronary perfusion?
18. What is pericardiectomy.
19. Write the methods of cardiopulmonary bypass.

Paper-10- NEUROLOGY

UNIT I- NERVOUS SYSTEM

6 Marks

1. Myasthenia gravis.
2. Write a note on neurotransmitters.
3. Neurocardiogenic syncope.
4. Dementia
5. Tremors.
6. Cerebrospinal fluid
7. Clinical features of Cerebellar disease.
8. Vertigo.
9. Brain death.
10. Motor neuron disease.
11. Structure and function of Neuromuscular Junction.
12. Intra cranial tension.
13. Bell's palsy.
14. Lumbar puncture.

3 Marks

1. Cerebrospinal fluid.
2. Migraine
3. Cardiomyopathy.
4. Myasthenia gravis.
5. Vertigo.
6. Tremors.
7. Lumbar disc prolapses.
8. Mention common neurotransmitters.
9. Vertigo.
10. Migraine.
11. Low back pain.
12. Motor aphasia.
13. Diffuse axonal injury
14. Faintness.
15. Acetyl choline receptors
16. Muscle spindle
17. Neurotransmitters
18. Cerebral blood flow and auto regulation

UNIT II - SENSORY SYSTEM

10 Marks

1. Clinical features, investigations and management of motor neuron disease.
2. Describe the clinical features, etiological factors and the management of the Cerebral palsy.

6 Marks

1. Trigeminal Neuralgia.
2. Vasovagal syncope.
3. Raised Intra Cranial Tension, its manifestations
4. Visual field defects.

3 Marks

1. Bladder innervation.
2. Facial pain.
3. Myelography.
4. Bell's palsy
5. Vasovagal syncope.
6. Brachial plexus
7. Neurogenic bladder

UNIT III - NEUROPATHOLOGY

6 Marks

1. Hydrocephalus.
2. Subarachnoid hemorrhage.
3. Extradural hematoma
4. CSF in Tb meningitis

3 Marks

1. Subarachnoid hemorrhage.
2. Extradural Hemorrhage.
3. Causes of stroke.
4. Raised Intra Cranial Tension, its manifestations
5. Lumbar puncture
6. Intracranial tumors

UNIT IV - NEUROLOGICAL DISEASES

10 Marks

1. Parkinson's disease. Its clinical features and manage in brief.
2. What is encephalitis? Enumerate the causes, classification, clinical features and management of encephalitis.
3. Headaches and its types. Brief note about each of them.
4. What is seizure and epilepsy? Enumerate the triggering factors, classification, cause and clinical features of epilepsy.
5. Discuss the etiologies, pathophysiology and management of Status Epilepticus.
6. Brain death, its clinical importance.
7. Meningitis and its manifestations.
8. Discuss the causes, Pathophysiology, clinical features and Treatment of Increased Intracranial Pressure.
9. Discuss the pathophysiology and management of Raised Intracranial Pressure.
10. Discuss Guillain-Barre Syndrome, its clinical course and management.
11. Clinical features, investigations, and management of motor neuron disease.

6 Marks

1. Brain abscess.
2. Syncope.

3. Delirium.
4. Synapsis.
5. Meningitis.
6. Wrists drop
7. Entrapment neuropathy
8. Spina bifida occulta
9. Spondylolisthesis
10. Cervical spondylosis
11. Polymyositis
12. Diabetic neuritis
13. Syringomyelia
14. Radial nerve palsy

3 Marks
1. Spinal cord injury.
2. Guillain-Barre Syndrome.
3. Causes of spinal cord compression and its symptoms.
4. Raynaud's disease.
5. Brain death.
6. Dementia
7. Aphasia.
8. Status epilepticus.
9. Neurotoxic envenomation.
10. Features of lower motor neuron paralysis
11. Anal reflux

PAPER 11 –NEPHROLOGY & PULMONOLOGY

UNIT I - GENITO- URINARY SYSTEM
10 Marks
1. Basis of urine formation and write briefly on clinical relevance of urine analysis
2. Write an essay on Physiology of kidney and write about renal replacement therapy.
3. List the complications of blood transfusion. What precautions will you take before connecting blood to a patient?
4. Write in detail about glomerulonephritis.

6 Marks
1. Edema
2. Renal function tests.
3. Glomerulonephritis.
4. Blood transfusion reaction.
5. Clinical examination for genitor urinary system disorders.
6. Blood transfusion.
7. Draw the structure of a nephron.
8. Glomerular filtration rate
9. Benign prostatic hypertrophy.
10. Hyperkalemia.
11. Innervations of urinary Bladder
12. Draw and Label Diagram of Nephron.

3 Marks
1. Juxta Glomerular apparatus.
2. Renal function test.
3. Standard healthcare precautions.
4. Blood transfusion.

5. Name 3 causes of secondary Glomerulonephritis.
6. Name 3 congenital abnormalities of the Kidney.
7. Histopathology of Kidney.
8. Obstructive uropathy.
9. Sterile pyuria.
10. Brief on pyelonephritis.
11. What is cystitis?
12. List 5 nephrotoxic drugs
13. In urinalysis what does the following mean: a) Increased urine WBC b) Increased urine RBC c) Increased urine albumin.
14. Write 3 causes for anemia.
15. Write about infective complications of blood transfusion.

UNITII - URINARY TRACT PATHOLOGY

10 Marks

1. How is uric acid handled by kidneys? Mention common causes Hyperuricemia. Outline the impact of Hyperuricemia on kidney.
2. Define Nephrotic Syndrome. Causes of Nephrotic Syndrome. What are theinvestigations to be done in a case of Nephrotic syndrome? Treatment ofNephrotic syndrome.
3. Define Urinary Tract Infection. What are the risk factors of developingurinary tract infection? Also write about management of urinary tract infection.
4. Define Chronic Kidney Disease. What are the causes of CKD? Mention Staging of CKD.Management of CKD.
5. Explain the difference between Nephritic and Nephrotic Syndromes.
6. Acute renal failure: Definition, causes, clinical findings, management.
7. Classify Renal failure and write briefly on clinical features and its diagnosis.
8. Write in detail about congenital anomalies of urinary system.

6 Marks

1. Urine sediment analysis in Acute Kidney Injury.
2. Pathologic classification of diabetic nephropathy and therapeutic trials in retarding progression of diabetic nephropathy.
3. Causes and management of Hypercalcemia.
4. IDEAL (Initiation of Dialysis Early and Late) trial – Essential features of the study and its impact on clinical practice.
5. Urinalysis and its importance in diagnosis of kidney disease.
6. Mention three causes each for Nephritic and Nephrotic Syndromes.
7. Obstructive nephropathy.
8. What are the symptoms of Acute Kidney Injury?
9. Secondary Glomerulonephritis
10. Pyelonephritis.
11. Explain about Urolithiasis.
12. What is Glomerulonephritis and its classification?
13. Write about End stage renal diseases and its treatment.

3 Marks

1. What are the common symptoms in a patient with Renal stone?
2. Name three common organisms associated with Urinary tract infection.
3. How do you prevent recurrence of kidney stone in a patient?
4. Mention Three Congenital kidney diseases.
5. Urolithiasis.
6. Hematuria
7. Proteinuria

UNIT III - CLINICAL EXAMINATION OF GENITOURINARY SYSTEM

6 Marks

1. Urine routine examination findings in acute glomerulonephritis.
2. Role of measurement of urinary electrolytes in clinical nephrology.
3. Urinary biomarkers for diagnosis of acute rejection.
4. What is dysuria? What tests will be asked for a patient with dysuria?
5. Define and mention the causes of Polyuria.
6. Renal replacement therapy.
7. Clinical examination for genitor urinary system disorders.

3 Marks

1. Pathology of antibody mediated rejection.
2. High flux hemodialysis – advantages and disadvantages.
3. Newer antiviral agents for hepatitis C infection.
4. 'Steroid free' immunosuppressive protocol in renal transplantation.
5. Online hemodiafiltration – principle and advantages.
6. Vaccination of patients awaiting renal transplantation
7. Name three causes of Haematuria.
8. Mention FOUR drugs used for Hypertension treatment.
9. List 3 causes of hematuria.
10. Mention 3 Causes of Pyuria.
11. Mention 3 Causes of Proteinuria.

UNIT IV - PULMONOLOGY

10 Marks

1. Cardiogenic and non-cardiogenic pulmonary edema.
2. Bronchial Asthma – Pathophysiology, manifestations, diagnosis and prevention. Outline the treatment options.
3. Diagnosis and management of acute severe Asthma.
4. Elaborate on occupational diseases of Lungs.
5. Write an essay on lung diseases.
6. Classify lung cancers. Write in detail about the etiology, risk factors, pathophysiology.
7. What is pneumonia? What are the causative organisms? Write about the clinical features and complications of pneumonia.
8. Chronic obstructive pulmonary disease: Definition, causes, clinical findings, management.

6 Marks

1. Respiratory failure.
2. Flail chest.
3. Pneumonia.
4. Occupational lung diseases.
5. Lung cancer.
6. Pulmonary Function Test.
7. Pneumonia.
8. What is pulmonary edema and its management?
9. What is hypoxia and its management?
10. List the types of lung cancer.
11. Write about the hazards of smoking.
12. Write a short note on hypoxia.
13. Nerve supply of diaphragm?
14. What is cyanosis? List 4 causes for it.
15. Treatment of status asthmaticus.
16. What questions will you ask a patient who comes to OPD with complaints of breathing difficulty?

17. Write about positive end expiratory pressure (PEEP).
18. What questions will you ask a patient who comes to OPD with complaints of blood
in sputum?
19. What are the complications of thoracentesis?
20. What are the clinical features of pleural effusion?
21. What is cyanosis? List 4 causes for it.
22. List the clinical features of lung cancer.
23. H1N1 (Swine flu) epidemics.
24. Anti-tuberculous drugs.
25. Thoracentesis.
26. Respiratory alkalosis and acidosis.
27. Lung compliance.
28. Newer diagnostic tools for tuberculosis.
29. O_2 dissociation curve.
30. Mechanism of granuloma formation in TB.
31. Non tubercular Mycobacteriosis.
32. Pulmonary infections in HIV patient.

3 Marks
1. Hypoxia
2. Innervation of diaphragm
3. CDH
4. Hemoptysis.
5. Bronchial Asthma.
6. Thoracentesis.
7. Standard healthcare precautions.
8. Whooping cough.
9. Smoking hazards.
10. Pleural effusion.
11. Hypercapnia.
12. Diagnosis of Pulmonary TB.
13. Dyspnea.
14. Pleural effusion.
15. Hazards of Smoking.
16. Flail chest.
17. Define: Respiratory alkalosis and acidosis.
18. What ishypercapnia and its management?
19. Classify lung cancers.
20. What are the triggers of bronchial asthma?
21. What are the chest x-ray findings in pulmonary edema?
22. What are the types of respiratory failure? What is the O2 and CO2 levels in each?
23. Write about the management of bronchial asthma.
24. What questions will you ask a patient who comes to OPD with complaints of cough?
25. Write 3 causes of pleural effusion.
26. Write the steps in thoracentesis
27. List 6 causative organisms for pneumonia.
28. What is Byssinosis?
29. List three non-cardiogenic causes of pulmonary edema.
30. List 3 other diseases commonly seen in COPD patients.
31. Write about salbutamol briefly.
32. Write about the management of acute exacerbation of bronchial asthma.
33. What are the triggers of bronchial asthma?
34. What is asbestosis?
35. Foreign body in trachea / bronchi.
36. Chest X ray findings in bronchiectasis.

37. Arterial blood gas analysis.
38. Assessing quality of life in COPD
39. Diagnosis of acute lung injury
40. Impact of air pollution on lung health
41. Broncho-pleural fistula
42. Lymph node TB
43. Appraisal of RNTCP
44. Smoking hazards.
45. Whooping cough.

Paper-12- GASTROENTEROLOGY & ORTHOPAEDICS

Unit 1- Clinical gastroenterology
10 Marks
1. Surgical Asepsis – principles and methods in relevance to the endoscopy room.
2. Infection control and Hygiene protocol of endoscopy room and write briefly on patient preparation for gastro- endoscopies.
3. Explain about colonoscopy and sigmoidoscopy.
4. Discuss the indications, contraindications, preparation and procedure of endoscopy.
5. Acute pancreatitis: Causes, clinical findings, management.
6. Discuss the role of probiotics in gastrointestinal and liver disorders.

6 Marks
1. Hepatitis B
2. Physiology of defecation.
3. HCV
4. Patient preparation for gastro endoscopy.
5. Forward viewing in endoscopy.
6. Specific instruments used in endoscopic and colonoscopy procedures.
7. Obesity.
8. HCV.
9. Viral hepatitis.
10. Specific instruments used in endoscopic and colonoscopy procedures.
11. Osteoarthritis.
12. Obesity.
13. Hepatitis B.
14. What are the indications for upper GI endoscopy?
15. Write a short note on physiology of defecation.
16. What diet advice will you give to patients with gastritis?
17. Anatomy of hepato-portal system.
18. Bleeding per rectum.
19. Hepatic veno – occlusive diseases.
20. Classification of colonic polyps.
21. Structure and functions of human proton pump.
22. Normal gut microbiota and its role in gut immunity.
23. Anatomy, clinical presentation and diagnosis of dieulofoy's lesion of GIT.
24. Recent advances in management of severe acute pancreatitis.
25. Applications of narrow band imaging endoscopy.

3 Marks
1. Double channel endoscopy.
2. Hematemesis.
3. Cholera management.
4. Peptic ulcer.
5. Vitamin D.

6. What is constipation and diarrhea?
7. What is Sigmoidoscopy?
8. What is gastric ulcer?
9. What are the treatment options for gastritis?
10. List 3 drugs used for the treatment of constipation.
11. Write a note on colonoscopy
12. Write 5 causes of hematemesis.
13. How will you prepare a patient for colonoscopy?
14. What is Malena? Write 2 causes for it.
15. Which bacteria causes gastritis? How to eradicate it?
16. Mechanism of action of proton pump inhibitors.
17. Gall bladder stone disease.
18. Ascites.
19. Idiopathic ulcerative colitis

Unit 2- Orthopedics
10 Marks
1. Pathophysiology, manifestations and summary of treatment of Osteoporosis.
2. Spinal Deformities.
3. Elaborate on Primary and Secondary Tumors of Bones.
4. Write in detail about osteosarcoma.
5. Discuss role of stem cell in orthopedics.

6 Marks
1. Osteosarcoma
2. Shoulder dislocation
3. Interval Derangements of Knee.
4. Tuberculosis of Spine.
5. Osteoporosis
6. Osteoarthritis.
7. Name 3 Metabolic bone disorders.
8. Fracture management.
9. Pelvic fracture.
10. Short note on congenital deformities of spine.
11. What is ankylosing spondylitis?
12. Write about rheumatoid arthritis.
13. List the types of fractures.
14. How will you diagnose rheumatoid arthritis based on clinical features and investigations?
15. Bone tumors.

3 Marks
1. Ankylosing spondylitis.
2. Trochanteric fracture.
3. Things sarcoma
4. Ewing's sarcoma
5. Torticollis.
6. Rickets.
7. Ewing’s sarcoma.
8. Vitamin D.
9. Name 3 Metabolic bone disorders.
10. What is osteoarthritis?
11. Write about Rickets and osteoporosis.
12. Write about costochondritis.
13. Write clinical features of osteosarcoma.
14. List the drugs used in the treatment of rheumatoid arthritis.
15. What are the features of inflammation?

16. Rheumatoid arthritis.
17. What is Ewing's sarcoma?
18. What is Rheumatoid arthritis?
19. Tumor markers in orthopedics
20. What is arthritis?
21. Define osteomyelitis.
22. Uses of suture anchor in orthopedics

Unit 3- Fracture
10 Marks
1. Define and classify Fracture and elaborate on fracture healing mechanisms and its management.
2. What is a fracture? What are the types of fracture? Mention the principles of fracture management.

6 Marks
1. Types of fractures.
2. What is Volkmann's ischemic contracture?
3. Monteggia fracture Dislocation.
4. Describe etiopathogenesis and management of biceps tendon rupture.
5. Discuss management of Radial club hand.
6. Discuss the implants in orthopedics.
7. Discuss bone graft in orthopedic.

3 Marks
1. Dislocation of hip.
2. List the types of fractures.
3. Define: Fracture.
4. Write about simple and compound fracture.
5. Write about types of fractures. Write about types of splints.
6. Internal Derangements of Knee.
7. Fracture healing.
8. Monteggia fracture Dislocation.
9. Plaster of Paris Cast.
10. Mention the disorders of hip.
11. What is metacarpal fracture?
12. Classify the types of injury.

Unit 4- Deformities and Disorders
10 Marks
1. Pathes pathophysiology, Classification, Management
2. Radiological Findings of DDH. Cause, Associated, Classification.

6 Marks
1. CTEV.
2. What is cauda equine syndrome and discuss its management?
3. Coxavara

3 Marks
1. Write a short note on surgical asepsis.
2. Immobilization of Cervical injury patient.
3. What is torticollis?