ANANTA INSTITUTE OF MEDICAL SCIENCES AND RESEARCH CENTRE, RAJSAMAND

YEARLY TIME TABLE for FIRST M.B.B.S. Batch: 2019 -20

MONTH	ANATOMY		PHYSIOLOGY		BIOCHEMISTRY		COMMUNITY MEDICINE	LINKER SESSION	EARLY CLINICAL EXPOSURE	AETCOM	SELF DIRECTED LEARNING
	THEORY	SMALL GROUP TEACHING / TUTORIALS/ PRACTICAL	THEORY	SMALL GROUP TEACHING/ TUTORIALS/ PRACTICAL	THEORY	SMALL GROUP TEACHING/ TUTORIALS/ PRACTICAL					
AUGUST 2019		CORE FOUNDATION COURSE (ANNEXURE I)									
SEPTEMBER 2019	General Anatomy Upper Limb	Introduction & dissection of upper limb Introduction & bones of upper limb	General Physiology Blood-I Nerve – Muscle Physiology-I	Describe apoptosis - programmed cell death Demonstrate the ability to describe and discuss the methods used to demonstrate the functions of the cells and its products, its communications and their applications in Clinical care and research Describe the concept of pH & Buffer systems in the body Describe different	Cell Chemistry of Carohydrate Chemistry of Lipids	Introduction to commonly used laboratory apparatus and instruments, Good safe laboratory practice and waste disposal Preparation of buffers and estimation of pH	Concept of Health and Disease	Cell	3 Hours each for Anatomy/Physiology/Biochemistry Dept for Basic Science Correlation	**Module 5** Part I 2 Hours Anatomy Dept	

				types of anaemias & Jaundice Describe bleeding & clotting disorders (Hemophilia, purpura) Describe different blood groups and discuss the clinical importance of blood grouping, blood banking and transfusion Discuss Nerve Growth Factor & other growth factors/cytokines Discuss the action of neuro-muscular blocking agents Describe the pathophysiology of Myasthenia gravis Describe the different types of muscle fibres and their structure Observe with Computer assisted learning (i) amphibian nerve - muscle experiment							

				Study of compound microscope Collection of Blood sample Estimate Hb Obtain history and perform general examination in the volunteer / simulated environment Perform Ergography							
OCTOBER 2019	Upper Limb General Histology General Embryology	Dissection of upper limb and general histology Bones, surface, living anatomy and radiological anatomy of upper limb	Blood-II Nerve-Muscle Physiology-II Cardiovascular System-I	1.Observe with Computer assisted learning (i) amphibian nerve - muscle experiments (ii) amphibian cardiac experiments Describe the mode of muscle contraction (isometric and isotonic) Explain energy source and muscle metabolism Explain the gradation of muscular activity Describe muscular dystrophy: myopathies Describe Strength-duration curve Describe the properties of cardiac	Chemistry of Proteins Enzymes - I	Normal Urine Abnormal Urine Principals of Colorimetry	Relationship of Social and Behavioural to Health and Disease Principals of Health promotion and Education		3 Hours each for Anatomy/Physiology/Biochemistry Dept for Basic Science Correlation	**Module 1** Part I 3 Hours First Week Physiology Dept **Module 1** Part II 3 Hours Third Week Physiology Dept	2 Hours as Part of AETCOM Physiology Dept Flipped Classroom 1 Hour + Case Based Learning 2 Hours + Tutorial 2 Hours for Anantomy and Physiology Dept.

				muscle including its morphology, electrical, mechanical and metabolic functions Describe the physiology of electrocardiogram (E.C.G), its applications and the cardiac axis Hemocytometry TRBC, TLC Record Arterial pulse tracing using finger plethysmography in a volunteer or simulated environment Record and interpret normal ECG in a volunteer or simulated Environment							
NOVEMBER 2019	Thorax General Histology General Embryology	Dissection of thorax and general histology Bones of thorax	Cardiovascular System-II Respiratory System-I	Describe and discuss haemodynamics of circulatory system RBC indices Blood groups Record blood pressure & pulse at rest and in different grades of exercise and postures in a volunteer or simulated environment	Enzymes – I Vitamins Biological Oxidation Metabolism of Lipid - I	Principals of Spectrophotometry Estimation of Glucose Estimation of Urea	Environmental Health Problems	Myocardial Infarction	3 Hours each for Anatomy/Physiology/Biochemistry Dept for Basic Science Correlation	**Module 2** Part I 3 Hours First Week Physiology Dept **Module 2** Part II 3 Hours First Week Physiology Dept	2 Hours as Part of AETCOM Physiology Dept 2 Hours Environmental Health Problems By Community

											Medicine Dept
DECEMBER 2019	Thorax General Histology General Embryology Abdomen	Dissection of thorax and general histology Bones, surface, living anatomy and radiological anatomy of thorax	Cardiovascular System-III Respiratory System-II	Describe and discuss the principles of artificial respiration, oxygen therapy, acclimatization and decompression sickness. Describe and discuss the pathophysiology of dyspnoea, hypoxia, cyanosis asphyxia; drowning, periodic breathing Describe and discuss lung function tests & their clinical significance BT/CT Demonstrate the correct clinical examination of the cardiovascular system in a normal volunteer or simulated environment	Metabolism of Lipid – II Metabolism of Carbohydrate – I	Estimation of Serum Creatinine and Creatinine Clearance Estimation of Serum Proteins, Albumin and A/G ratio Screening of urine for Inborn Errors and Paper Chromatography and TLC	Environmental Health Problems				Flipped Classroom 1 Hour + Case Based Learning 2 Hours + Tutorial 2 Hours for each Pre-clinical Dept.
FIRST INTERNAL ASSESSMENT EXAMINATION IN WILL BE IN SECOND WEEK OF DECEMBER											
JANUARY 2020	Abdomen Histology Embryology	Dissection of abdomen & systemic histology	Renal Physiology-I Gastrointestinal Tract-I	1.Describe the renal regulation of fluid and electrolytes & acid-base Balance	Metabolism of Carbohydrate- II Metabolis	Estimation of Serum Total Cholesterol Estimation of Serum Bilirubin	Nutrition	Diabetes Mellitus Jaundice	3 Hours each for Anatomy/Physiology/Biochemistry Dept		Flipped Classroom 2 Hour + Case Based Learning

		Bones, surface, living anatomy and radiological anatomy of abdomen		Describe artificial kidney, dialysis and renal transplantation Describe & discuss Renal Function Tests Describe cystometry and discuss the normal cystometrogram Describe the physiology of digestion and absorption of nutrients Describe the Gut-Brain Axis Describe test for ESR, Osmotic fragility, Hematocrit. Note the findings and interpret the test results etc Haemin crystal Demonstrate the correct technique to perform & interpret Spirometry Demonstrate the correct clinical examination of the	m of Proteins Renal Function Test				for Basic Science Correlation		4 Hours + Tutorial 4 Hours for Anatomy

				respiratory system in a normal volunteer or simulated environment							
FEBRUARY 2020	Pelvis Lower Limb Histology Embryology	Dissection of pelvis & lower limb. Systemic histology Bones of pelvis & lower limb, surface, living anatomy and radiological anatomy of pelvis	Renal Physiology-II Gastrointestinal Tract-II Reproductive Physiology-I Endocrine Physiology-I	Describe & discuss gastric function tests, pancreatic exocrine function tests & liver function tests Discuss the physiology aspects of: peptic ulcer, gastrooesophageal reflux disease, vomiting, diarrhoea, constipation, Adynamic ileus, Hirschsprung's disease Enumerate the contraceptive methods for male and female. Discuss their advantages & disadvantages Peripheral blood smear preparation, staining & Identification of cells Demonstrate effect of mild, moderate and severe exercise and record changes in	Integration of Metabolism Minerals Nutrition	Demonstration on Auto-analyzer Estimations of Triglycerides Estimation of Serum Calcium	Nutrition		3 Hours each for Anatomy/Physiology/Biochemistry Dept for Basic Science Correlation	**Module 3** Part I 2 Hours 30 Minutes First Week Biochemistry Dept **Module 3** Part II 2 Hours 30 Minutes Third Week Biochemistry Dept	2 Hours as Part of AETCOM Biochemistry Dept 1 Hour as Nutrition by Community Medicine Dept.

				cardiorespiratory parameters Demonstrate Harvard Step test and describe the impact on induced physiologic parameters in a simulated environment Demonstrate the correct technique to perform measurement of peak expiratory flow rate in a normal volunteer or simulated environment							
MARCH 2020	Lower Limb Histology Embryology / Genetics	Dissection of lower limb & systemic histology Bones, surface, living anatomy and radiological anatomy of lower limb	Reproductive Physiology-II Endocrine Physiology-II	Interpret a normal semen analysis report including (a) sperm count, (b) sperm morphology and (c) sperm motility, as per WHO guidelines and discuss the results Discuss the physiological basis of various pregnancy tests Discuss the hormonal changes and their effects during perimenopause and menopause	Chemistry of Nucleic Acid Metabolism of Nucleic Acid Genetics – I	Demonstration on Electrophoresis -PAGE, Immunodiffusion Estimation of Serum Phosphorous	Demography and Vital statistics				Flipped Classroom 1 Hour + Case Based Learning 2 Hours + Tutorial 2 Hours for each Pre-clinical Dept.

				Discuss the common causes of infertility in a couple and role of IVF in managing a case of infertility. Describe function tests: Adrenal cortex, Adrenal medulla and pancreas Describe the physiology of Thymus & Pineal Gland Describe the metabolic and endocrine consequences of obesity & metabolic syndrome, Stress response. Outline the psychiatry component pertaining to metabolic syndrome DLC Demonstrate the correct clinical examination of the abdomen in a normal volunteer or simulated environment							
SECOND INTERNAL ASSESSMENT EXAMINATION WILL BE IN SECOND WEEK OF APRIL											
APRIL 2020	Head & Neck	Dissection of head and neck &	Neurophysiology-I	Describe steps for reticulocyte and platelet count	Genetics – II Molecular	Estimation of Serum HDL Cholesterol	Demography and Vital statistics		3 Hours each for Anatomy/Phy	**Humanities** Part I	4 Hours as Part of Humanities

	Histology Embryology / Genetics	systemic histology Bones of head & neck	Integrated Physiology-I	Demonstrate the correct clinical examination of the nervous system: Sensory system, motor system	Biology – I	Estimation of SGOT/SGPT Demonstrate the Estimation of Alkaline Phosphatase			siology/Biochemistry Dept for Basic Science Correlation	2 Hours First Week Biochemistry Dept **Humanities** Part II 2 Hours Third Week Biochemistry Dept.	Biochemistry Dept 2 Hours as Case Based Learning Anatomy Dept
MAY 2020	Head & Neck Embryology / Genetics	Dissection of head and neck Bones of head & neck	Neurophysiology-II	Describe and discuss Spinal cord, its functions, lesion & sensory Disturbances Demonstrate the correct clinical examination of the nervous system: Higher functions, reflexes, Cranial Nerves in a normal volunteer or simulated environment	Molecular Biology – II Chemistry and Metabolism of Hemoglobin	Demonstration on ELISA Demonstration on Quality Control			3 Hours each for Anatomy/Physiology/Biochemistry Dept for Clinical Skill		Flipped Classroom 1 Hour each for Anatomy and Physiology Dept 2 Hours as Field Survey by Community Medicine Dept.
JUNE 2020	Head & Neck Neuroanatomy	Dissection of head and neck & brain Bones, surface, living anatomy and	Neurophysiology-III Integrated Physiology-II	Describe Synthesis, Secretion, Transport, Physiological Action and regulation of Thyroid Gland Describe the function test of Thyroid Gland Describe and discuss chemical transmission	Organ Function Tests Immunology - I	Demonstration on DNA isolation from blood and tissue Demonstrations on Electrolyte analysis by ISE		Thyroid Disorders	3 Hours each for Anatomy/Physiology/Biochemistry Dept for Clinical Skill	**Module 4** Part I 2 Hours 30 Minutes First Week Anatomy Dept **Module 3** Part II 2 Hours	2 Hours as Part of AETCOM Anatomy Dept Flipped Classroom 1 Hour + Case Based

		radiological anatomy of head & neck		in the nervous system. (Outline the psychiatry element). Identify normal EEG forms Describe and discuss pathophysiology of deafness. Describe hearing tests Describe and discuss auditory & visual evoke potentials Demonstrate (i) Testing of visual acuity, colour and field of vision and (ii) hearing (iii) Testing for smell and (iv) taste sensation in volunteer/ simulated environment						30 Minutes Third Week Anantomy Dept	Learning 2 Hours + Tutorial 2 Hours for Anatomy
JULY 2020	Neuroanatomy	Dissection of brain Surface, living anatomy and radiological anatomy of brain	Integrated Physiology-III	Interpret growth charts Interpret anthropometric assessment of infants Discuss the physiological effects of meditation Demonstrate Basic Life Support in a simulated environment	Immunology – II Water and Electrolyte, Acid Base Balance	Demonstration on ABG Analyzer			3 Hours each for Anatomy/Physiology/Biochemistry Dept for Clinical Skill		Flipped Classroom 1 Hour + Case Based Learning 2 Hours + Tutorial 2 Hours for each Pre-clinical Dept.
THIRD INTERNAL ASSESSMENT EXAMINATION WILL BE IN FIRST WEEK OF AUGUST											
AUGUST 2020									3 Hours each for	Module 5 Part II	

									Anatomy/Physiology/Biochemistry Dept for Clinical Skill	2 Hours Anatomy Dept	
SEPTEMBER 2020		UNIVERISTY EXAMINATION									

DISTRIBUTION OF TOPICS

ANANTOMY: ANNEXURE II

PHYSIOLOGY: ANNEXURE III

BIOCHEMISTRY: ANNEXURE IV

COMMUNITY MEDICINE: ANNEXURE V

Foundation Course Time Table (Annexure - I)

Sr. No	Subject/content	Hours (MCI)	Coordinator	Remarks
1	Orientation	30	Faculty Member	Conducted in 1st week of foundation course only
2	Skills Module	35	Faculty Member	First Aid, BLS, Learning skill, communication skill, Bio safety and bio hazards
3	Field visit to community health centre	8	Faculty Member	Will be finalized by CM Department
4	Sports and Extracurricular activities (ECA)	22	Faculty Member	Will be conducted in afternoon session
5	Enhancement of language/ computer skills	40	Faculty Member	To be outsourced (CCC/CCC+) Language?
6	Professional development including ethics	40	Faculty Member	Cadaveric ceremony and research
Total Hours		**175**		

* These sessions must be as interactive as possible.
* The Foundation Course will have compulsory 75% attendance. This will be certified by the Principal & Controller of the college.
*The time committed for the Foundation Course may not be used for any other curricular activity.
* Topics covered (sources): MCI-CISP Document, Premier and renowned institute of India (e.g. AIIMS, JIPMER and Others), few topics were selected based on institutional need.

* **Evaluation (Process & Product):** Program effectiveness questionnaire from faculty and students & reflections from the students
* **Reporting:** The Curriculum Committee will submit the schedule and report shall forward the same to NC/RC within two weeks of the last day of the Foundation Course.

* Total days – 25; 40 Hours per week; timing from 8am-4pm; Changes in Time Table are subject to exigencies.

1st Week (Orientation week)						
Time	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**
8-9 am	Welcome Function (White coat ceremony)	Ice breaking by all four HODs	Being a Medical Student Keen Observation is key to success	Introduction to Medical ethics	Academic Ambience	Immunisation requirements of health care professionals
9-10 am		Introduction to Library/ IT/ Academic Departments	Professional qualities and roles of a Physician	Commitment to lifelong learning as an important part of Physician's growth	Introduction to alternate health care systems & H/O Medicine	Learning from patients and other members of health care team
10-11 am		Introduction to 1st year Departments	Expectations of physician from society and Peers	Physician's role and responsibility to society and community	Mentorship program	Communication with patients and families
11-12 noon			Gender sensitivity in medical profession	Expectations of society and patients from doctors		Peer assisted learning
12-1 pm	**Lunch Break**					
1-2 pm	Campus - A global Village College & Hospital visit	Introduction to the MBBS Program	Health care delivery system in India	National Health Programs-1	Bio-safety/ Needle prick injuries	Sports
2-3 pm		ECA	ECA	Time and Stress management	Sports	
3-4 pm						

2nd Week						
Time	**Day 7**	**Day 8**	**Day 9**	**Day 10**	**Day 11**	**Day 12**
8-9 am	Inter-personal relationship	Proper hand washing technique	Biomedical waste management	Community based learning	Concept of professionalism & Consequence of unethical behaviour	Field visit to PHC/ CHC
9-10 am		Documentation and medical records		Universal precautions		
10-11 am	Language	Language	Language	Language	Language	
11-12 noon						
12-1 pm	**Lunch Break**					
1-2 pm	Computer skills	Computer skills	Learning pedagogy	Computer skills	Learning strategies	Sports
2-3 pm			ECA		Sports	
3-4 pm						

3rd Week						
Time	**Day 13**	**Day 14**	**Day 15**	**Day 16**	**Day 17**	**Day 18**
8-9 am	BLS/ First Aid	BLS/ First Aid	Obtaining patient consent	Privileged communication in medical ethics	Importance of attendance	Role modelling
9-10 am				What it means to be a medical student	Experience sharing by seniors How do they learn?	Team work in medical profession
10-11 am			How to behave with your superiors	Assessment driven learning	Personal Grooming- Self care	
11-12 noon			Rights of a doctor and MCI etiquettes	Value of integrity, honesty and respect in medical profession	Communication with patients & families	Evidence based medicine
12-1 pm	**Lunch Break**					
1-2 pm	Computer skills	Computer skills	Online learning(e-learning)	Computer skills	How to perform better in exams?	Sports
2-3 pm			ECA		ECA	
3-4 pm						

4th Week						
Time	**Day 19**	**Day 20**	**Day 21**	**Day 22**	**Day 23**	**Day 24**
8-9 am	Introduction to research	Field visit to PHC/ CHC	Medical language	Student involvement in research ICMR STS	Cadaveric ceremony	Maintaining a diary and portfolio management
9-10 am	Group dynamics			Self Directed Learning		
10-11 am	Language		Assessment of language and computer skills			Learning from patients and other members of health care team
11-12 noon				Introduction to IEC of our institute		Book fair
12- 1 pm	**Lunch break**					
1-2 pm	Computer skills	Computer skills	Feedback of orientation programme	Peer assisted learning	Anti-ragging guidelines and introduction to anti-ragging committee of our institute	Animal ethics
2-3 pm				Simulation based learning		Professional behaviour
3-4 pm				Group learning	Video reflection	

5th week	
Time	**Day 25**
8-9 am	Maintaining confidentiality
9-10 am	
10-11 am	Role modelling
11-12 noon	
12-1 pm	**Lunch break**
1-2 pm	Feedback of foundation course & Reflective writing
2-3 pm	
3-4 pm	

Annexure II: Anatomy

TOPIC	Number of Lectures	Division of Topics
General Anatomy Anatomical terminology	01	• Normal anatomical position, various planes, relation, comparison, laterality & movement in our body
Bone	02	• Composition of bone and bone marrow & parts, blood and nerve supply of a long bone • Laws of ossification & enumerate special features of a sesamoid bones
Cartilage	01	• Various types of cartilage with its structure & distribution in body
Joints	01	• Describe various joints with subtypes and examples & explain the concept of nerve supply of joints & Hilton's law
Muscle	02	• Classify muscle tissue according to structure & action. Enumerate parts of skeletal muscle. • Differentiate between tendons and aponeuroses with example. Explain Shunt and spurt muscles
Skin & Fascia	02	• Describe different types of skin & dermatomes in body, structure & function of skin with its appendages & explain principles of skin incisions. • Describe superficial fascia along with fat distribution in body & modifications of deep fascia with its functions.
Cardiovascular system	03	• Differentiate between blood vascular and lymphatic system, differentiate between pulmonary and systemic circulation. • List general differences between arteries & veins. Explain functional difference between elastic, muscular arteries and arterioles, portal system giving examples. • Explain the concept of anastomoses and collateral circulation with significance of end-arteries & functions of meta-arterioles, precapillary sphincters, arterio-venous anastomoses & define thrombosis, infarction & aneurysm.
Lymphatic system	02	• List the components and functions of the lymphatic system. Describe structure of lymph capillaries & mechanism of lymph circulation. • Explain the concept of lymphoedema and spread of tumors via lymphatics and venous system

Nervous system	03	• Describe general plan of nervous system with components of central, peripheral & autonomic nervous systems. List components of nervous tissue and their functions. • Describe parts of a neuron and classify them based on number of processes, size & function. Describe structure of a typical spinal nerve. • Describe principles of sensory and motor innervation of muscles. Concept of loss of innervation of a muscle with its applied anatomy & various types of synapses. Describe differences between sympathetic and spinal ganglia.
General Histology Introduction to histology	01	• Study of microscopes & common objects
Epithelium	02	• Identify epithelium under the microscope, describe the various types (simple) that correlate to its function. • Describe straitified epithelium, its type by correlating with their functions & ultrastructure of epithelium.
Connective tissue	01	• Describe & identify various types of connective tissue with functional correlation & ultrastructure of connective tissues.
Muscular tissue	01	• Describe & identify various types of muscles, under the microscope by classifying with their structure correlating with their functions & ultrastructure of muscular tissue.
Nervous tissue	02	• Describe & Identify multipolar & unipolar neurons with their structure-function correlation. • Ganglia, peripheral nerve & ultrastructure of nervous tissue.
Blood vessels	01	• Identify elastic, muscular blood vessels & capillaries under the Microscope, various types and structure-functions correlating to each other & ultrastructure of blood vessels.
Glands & lymphatic tissue	03	• Identify exocrine gland under the microscope & distinguish between serous, mucous and mixed acini. • Identify the lymphoid tissue under the microscope & describe microanatomy of lymph node & spleen by correlating the structure with function. • Thymus & tonsil by correlating the structure with function.
Bone & cartilage	02	• Identify bone under the microscope; classify various types and describe the structure-

		function correlation of the same. • Identify cartilage under the microscope & describe various types and structure-function correlation of the same.
Integumentary system	01	• Identify the skin, types and its appendages under the microscope and correlate the structure with function.
General Embryology Introduction to embryology	01	• Describe the stages of human life & explain the terms- phylogeny, ontogeny, trimester & viability.
Gametogenesis and fertilization	04	• Describe the uterine changes occurring during the menstrual cycle & synchrony between the ovarian and menstrual cycles. • Describe spermatogenesis and oogenesis along with diagrams. • Describe the stages and consequences of fertilization and describe the anatomical principles underlying contraception. • Describe teratogenic influences; fertility, sterility, surrogate Motherhood & social significance of "sex-ratio".
Second week of development	04	• Describe cleavage and formation of blastocyst & development of trophoblast. • Describe the process of implantation & common abnormal sites of implantation. • Describe the formation of extra-embryonic mesoderm and coelom, bilaminar disc and prochordal plate. • Describe in brief abortion; decidual reaction, pregnancy test
3rd to 8th week of development	04	• Describe the formation & fate of the primitive streak and notochord. • Describe the process of neurulation, development of somites and intra-embryonic coelom. • Explain embryological basis of congenital malformations, nucleus pulposus, sacrococcygeal teratomas, neural tube defects. • Describe the diagnosis of pregnancy in first trimester and role of teratogens, alpha-fetoprotein.
Fetal membranes	04	• Describe formation, functions & fate of-chorion: amnion; yolk sac; allantois & deciduas. • Describe formation, structure of umbilical cord & describe various types of umbilical

		cord attachments. • Describe formation of placenta, its physiological functions, foeto-maternal circulation & placental barrier. • Describe embryological basis of twinning in monozygotic & dizygotic twins & role of placental hormones in uterine growth with parturition. Explain embryological basis of estimation of fetal age.
Prenatal Diagnosis	01	• Describe various methods of prenatal diagnosis.Describe indications, process and disadvantages of amniocentesis & chorion villus biopsy.
Ethics in anatomy	01	• Respect and follow the correct procedure when handling cadavers and other biologic tissue.
Upper limb Pectoral region	02	• Describe attachment, nerve supply & action of pectoralis major and pectoralis minor. • Breast: Describe the location, extent, deep relations, structure, age changes, blood supply, lymphatic drainage, microanatomy, applied anatomy & development.
Axilla, Shoulder and Scapular region	07	• Describe dermatomes of upper limb & describe boundaries and contents of axilla & describe the origin, extent, course, parts, relations and branches of axillary artery & tributaries of vein. • Describe formation, branches, relations, area of supply of branches. Explain variations in formation of brachial plexus. Explain the anatomical basis of clinical features of Erb's palsy and Klumpke's paralysis • Describe the anatomical groups of axillary lymph nodes and specify their areas of drainage. Explain anatomical basis of enlarged axillary lymph nodes. • Describe, position, attachment, nerve supply and actions of trapezius and latissimus dorsi. Describe the arterial anastomosis around the scapula and mention the boundaries of triangle of auscultation. • Describe and identify the deltoid and rotator cuff muscles & describe attachment of serratus anterior with its action. • Describe shoulder joint for– type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, muscles involved, blood supply, nerve supply and

		applied anatomy. • Describe axillary nerve in detail and explain anatomical basis of injury to nerve during intramuscular injections.
Arm and Cubital fossa	05	• Describe and explain Fascia of upper limb and compartments, veins of upper limb and its lymphatic drainage. • Describe the group of muscles of arm with emphasis on biceps and triceps brachii. • Describe origin, course, relations, branches, tributaries and termination of important nerves and vessels in arm. • Describe boundaries and contents of cubital fossa. • Describe the anastomosis around the elbow joint. Describe the anatomical basis of venepuncture of cubital veins and Saturday night paralysis.
Forearm & Hand	10	• Describe important muscle groups of front of forearm with attachments, nerve supply and actions. • Describe origin, course, relations, branches, tributaries and termination of important nerves and vessels of the forearm. • Describe flexor retinaculum with its attachments. Explain anatomical basis of carpal tunnel syndrome. • Describe small muscles of hand. Also describe movements of thumb and muscles involved. • Describe course and branches of important blood vessels and nerves in hand and describe anatomical basis of Claw hand. • Describe fibrous flexor sheaths, ulnar bursa, radial bursa and digital synovial sheaths. • Describe fascial spaces of palm and its applied anatomy. • Describe important muscle groups of back of forearm with attachments, nerve supply and actions. • Identify & describe origin, course, relations, branches, tributaries & termination of important nerves and vessels of back of forearm. Describe the anatomical basis of Wrist drop.

		• Describe compartments deep to extensor retinaculum & describe extensor expansion formation.
Joints of upper limb	02	• Describe the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, blood and nerve supply of elbow joint, proximal and distal radio-ulnar joints • Describe Wrist joint, sternoclavicular joint & carpometacarpal joint (first).
Thorax Thoracic cage	08	• Describe & demonstrate extent, attachments, direction of fibres, nerve supply and actions of intercostal muscles. • Describe & demonstrate origin, course, relations and branches of a typical intercostal nerve. • Mention origin, course and branches/ tributaries of: 1) anterior & posterior intercostal vessels 2) internal thoracic vessels • Mention the origin, course, relations and branches of 1) atypical intercostal nerve 2) superior intercostal artery, subcostal artery • Describe & demonstrate type, articular surfaces & movements of manubriosternal, costovertebral, costotransverse and xiphisternal joints. • Describe & demonstrate mechanics and types of respiration • Describe costochondral and interchondral joints • Describe boundaries and contents of the superior, anterior, middle and posterior mediastinum.
Heart & Pericardium	04	• Describe subdivisions, sinuses in pericardium, blood supply and nerve supply of pericardium. • Describe external and internal features of each chambers of heart. • Describe origin, course and branches of coronary arteries. Describe anatomical basis of ischaemic heart. • Describe the formation, course, tributaries and termination of coronary sinus.

		• Describe the fibrous skeleton of heart. Write the parts, position and arterial supply of the conducting system of heart.
Mediastinum	04	• Describe the external appearance, relations, blood supply, nerve supply,lymphatic drainage and applied anatomy of oesophagus • Describe the extent, relations tributaries of thoracic duct and enumerate its applied anatomy • Describe origin, course, relations, tributaries and termination of superior venacava, azygos, hemiazygos and accessory hemiazygos veins • Mention the extent, branches and relations of arch of aorta & descending thoracic aorta • Mention the location and extent of thoracic sympathetic chain • Describe the splanchnic nerves • Mention the extent, relations and applied anatomy of lymphatic duct
Lungs & Trachea	03	• Mention the blood supply, lymphatic drainage and nerve supply of pleura, extent of pleura and describe the pleural recesses and their applied anatomy. • Identify side, external features and relations of structures which form root of lung & bronchial tree and their clinical correlate • Describe a bronchopulmonary segment. Identify phrenic nerve & describe its formation & distribution • Mention the blood supply, lymphatic drainage and nerve supply of lungs • Describe the extent, length, relations, blood supply, lymphatic drainage and nerve supply of trachea.
Abdomen Anterior abdominal wall	04	• Describe the Planes (transpyloric, transtubercular, subcostal, lateral vertical, linea alba, linea semilunaris), regions & Quadrants of abdomen. • Describe & identify the Fascia, nerves & blood vessels of anterior abdominal wall. • Describe the formation of rectus sheath and its contents • Describe extent, boundaries, contents of Inguinal canal including Hesselbach's triangle. • Explain the anatomical basis of inguinal hernia. AN44.6 Describe & demonstrate

		attachments of muscles of anterior abdominal wall • Enumerate common Abdominal incisions
Posterior abdominal wall	02	• Describe Thoracolumbar fascia. • Describe Lumbar plexus for its root value, formation & branches. • Mention the major subgroups of back muscles, nerve supply and action.
Male external genitalia	03	• Describe coverings, internal structure, side determination, blood supply, nerve supply, lymphatic drainage & descent of testis with its applied anatomy • Describe parts of Epididymis • Describe Penis under following headings: (parts, components, blood supply and lymphatic drainage) • Explain the anatomical basis of VaricocoeleExplain the anatomical basis of Phimosis & Circumcision
Abdominal cavity	12	• Describe boundaries and recesses of Lesser & Greater sac Name various peritoneal folds & pouches with its explanation • Explain anatomical basis of Ascites & Peritonitis • Explain anatomical basis of Subphrenic abscess • Describe major viscera of abdomen under following headings: stomach, small intestines, large intestines, liver, extrahepatic biliary apparatus, pancreas, kidney, ureter & suprarenal gland (anatomical position, external and internal features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and applied aspects) • Explain the anatomical basis of Splenic notch, Accessory spleens, Kehr's sign, Different types of vagotomy, Liver biopsy (site of needle puncture), Referred pain in cholecystitis, Obstructive jaundice, Referred pain around umbilicus, Radiating pain of kidney to groin & Lymphatic spread in carcinoma stomach. • Mention the clinical importance of Calot's triangle • Describe & identify the formation, course relations and tributaries of Portal vein, Inferior vena cava & Renal vein • Describe & identify the origin, course, important relations and branches of Abdominal

		aorta, Coeliac trunk, Superior mesenteric, Inferior mesenteric & Common iliac artery • Enumerate the sites of portosystemic • Explain the anatomic basis of hematemesis& caput medusae in portal hypertension • Describe important nerve plexuses of posterior abdominal wall • Describe the attachments, openings, nerve supply & action of the thoracoabdominal diaphragm • Describe the abnormal openings of thoracoabdominal diaphragm and diaphragmatic hernia
Pelvis Pelvic wall & viscera	09	• Describe & identify the muscles of Pelvic diaphragm • Describe the (position, features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and clinical aspects of) important male & female pelvic viscera (urinary bladder, prostate, urethra, rectum, anal canal, uterus, ovary and fallopian tube) • Describe the origin, course, important relations and branches of internal iliac artery • Describe the branches of sacral plexus • Explain the anatomical basis of suprapubic cystostomy, Urinary obstruction in benign prostatic hypertrophy, Retroverted uterus, Prolapse uterus, Internal and external haemorrhoids, Anal fistula, Vasectomy, Tubal pregnancy & Tubal ligation • Describe the neurological basis of Automatic bladd Mention the lobes involved in benign prostatic hypertrophy & prostatic cancer • Mention the structures palpable during vaginal & rectal examination.
Perineum	03	• Describe the superficial & deep perineal pouch (boundaries and contents) • Describe & identify Perineal body • Describe Perineal membrane in male & female • Describe boundaries, content & applied anatomy of Ischiorectal fossa • Explain the anatomical basis of Perineal tear, Episiotomy, Perianal abscess and Anal fissure
Lower limb	03	• Describe origin, course, relations, branches, tributaries & termination of important

Front & Medial side of thigh		nerves and vessels of anterior part of the thigh • Describe major muscles with their attachment, nerve supply and actions • Describe boundaries, floor, roof and contents of femoral triangle • Explain anatomical basis of Psoas abscess & Femoral hernia Describe and demonstrate adductor canal with its content
Gluteal region & back of thigh	05	• Describe origin, course, relations, branches, tributaries & termination of important nerves and vessels of gluteal region • Describe anatomical basis of sciatic nerve injury during gluteal intramuscular injections • Explain the anatomical basis of Trendelenburg sign • Describe the hamstrings group of muscles with their attachment, nerve supply and actions • Describe the origin, course, relations, branches, tributaries & termination of important nerves and vessels on the back of thigh • Describe the boundaries, roof, floor, contents and relations of popliteal fossa
Hip joint	02	• Describe the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the hip joint • Describe anatomical basis of complications of fracture neck of femur • Describe dislocation of hip joint and surgical hip replacement
Knee joint, Anterolateral compartment of leg & dorsum of foot	05	• Describe major muscles of anterolateral compartment of leg with their attachment, nerve supply and actions • Describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior compartment of leg • Explain the anatomical basis of foot drop • Describe the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the knee joint • Explain the anatomical basis of locking and unlocking of the knee joint

		• Describe knee joint injuries with its applied anatomy Explain anatomical basis of Osteoarthritis
Back of Leg & Sole	04	• Describe the major muscles of back of leg with their attachment, nerve supply and actions • Describe the origin, course, relations, branches, tributaries & termination of important nerves and vessels of back of leg • Explain the concept of "Peripheral heart" • Explain the anatomical basis of rupture of calcaneal • Describe factors maintaining importance arches of the foot with its importance • Explain the anatomical basis of Flat foot & Club foot • Explain the anatomical basis of Metatarsalgia & Plantar fasciitis
General Features, Joints	04	• Describe the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply of tibiofibular and ankle joint • Describe the subtalar and transverse tarsal joints • Describe Fascia lata, Venous drainage, Lymphatic drainage, Retinacula & Dermatomes of lower limb • Explain anatomical basis of enlarged inguinal lymph nodes • Explain anatomical basis of varicose veins and deep vein thrombosis
Genetics Chromosomes	02	• Describe the structure of chromosomes with classification • Describe technique of karyotyping with its applications • Describe the Lyon's hypothesis
Patterns of Inheritance	04	• Describe the various modes of inheritance with examples. Pedigree charts for the various types of inheritance & give examples of diseases of each mode of inheritance. • Describe multifactorial inheritance with examples • Describe the genetic basis & clinical features of Achondroplasia, Cystic Fibrosis, Vitamin D resistant rickets, Haemophilia, Duchene's muscular dystrophy & Sickle cell anaemia

Principle of Genetics, Chromosomal Aberrations & Clinical Genetics	04	• Describe the structural and numerical chromosomal aberrations • Explain the terms mosaics and chimeras with example • Describe the genetic basis & clinical features of Prader Willi syndrome, Edward syndrome & Patau syndrome • Describe genetic basis of variation: polymorphism and mutation • Describe the principles of genetic counseling
Head & Neck Scalp	01	• Describe the layers of scalp, its blood supply, its nerve supply and surgical importance • Describe emissary veins with its role in spread of infection from extracranial route to intracranial venous sinuses
Face & parotid region	04	• Describe muscles of facial expression and their nerve supply • Describe sensory innervation of face • Describe origin /formation, course, branches /tributaries of facial vessels • Describe branches of facial nerve with distribution • Describe cervical lymph nodes and lymphatic drainage of head, face and neck • Identify superficial muscles of face, their nerve supply and actions • Explain the anatomical basis of facial nerve palsy • Explain surgical importance of deep facial vein • Describe the parts, borders, surfaces, contents, relations and nerve supply of parotid gland with course of its duct and surgical importance • Explain the anatomical basis of Frey's syndrome
Posterior triangle of neck	02	• Describe attachments, nerve supply, relations and actions of sternocleidomastoid • Explain anatomical basis of wry neck • Describe attachments of 1) inferior belly of omohyoid, 2)scalenus anterior, 3) scalenus medius & 4) levator scapulae
Cranial cavity	02	• Describe dural folds & dural venous sinuses & clinical importance of dural venous sinuses. • Describe pitutary gland. Explain effect of pituitary tumours on visual pathway.
Orbit	04	• Describe & identify extra ocular muscles of eyeball • Describe nerves and vessels in the orbit

		• Describe anatomical basis of Horner's syndrome • Enumerate components of lacrimal apparatus • Explain the anatomical basis of oculomotor, trochlear and abducent nerve palsies along with strabismus
Anterior Triangle	02	• Describe boundaries and subdivisions of anterior triangle • Describe boundaries and contents of muscular, carotid, digastric and submental triangles
Temporal and Infratemporal regions	04	• Describe extent, boundaries and contents of temporal and infratemporal fossae. Describe & demonstrate attachments, direction of fibres, nerve supply and actions of muscles of mastication • Describe articulating surface, type & movements of temporomandibular joint • Explain the clinical significance of pterygoid venous plexus • Describe the features of dislocation of temporomandibular joint
Submandibular region	01	• Describe the morphology, relations and nerve supply of submandibular salivary gland & submandibular ganglion • Describe the basis of formation of submandibular stones
Deep structures in the neck	09	• Describe the parts, extent, attachments, modifications of deep cervical fascia • Describe location, parts, borders, surfaces, relations & blood supply of thyroid gland • Describe the origin, parts, course & branches subclavian artery • Describe origin, course, relations, tributaries and termination of internal jugular & brachiocephalic veins • Describe extent, drainage & applied anatomy of cervical lymph nodes • Describe the extent, formation, relation & branches of cervical sympathetic chain • Describe the course and branches of IX, X, XI & XII nerve in the neck • Describe the anatomically relevant clinical features of Thyroid swellings • Describe the clinical features of compression of subclavian artery and lower trunk of brachial plexus by cervical rib • Describe the fascial spaces of neck
Mouth, Pharynx & Palate	03	• Describe the 1) morphology, relations, blood supply and applied anatomy of palatine

		tonsil 2) composition of soft palate • Describe the components and functions of Waldeyer's lymphatic ring • Describe the boundaries and clinical significance of pyriform fossa • Describe the anatomical basis of tonsillitis, tonsillectomy, adenoids and peri-tonsillar abscess • Describe the clinical significance of Killian's dehiscence
Cavity of Nose	03	• Describe features of nasal septum, lateral wall of nose, their blood supply and nerve supply • Describe location and functional anatomy of paranasal sinuses • Describe anatomical basis of sinusitis & maxillary sinus tumours
Larynx	02	• Describe the morphology, identify structure of the wall, nerve supply, blood supply and actions of intrinsic and extrinsic muscles of the larynx • Describe the anatomical aspects of laryngitis • Describe anatomical basis of recurrent laryngeal nerve injury
Tongue	02	• Describe the morphology, nerve supply, embryological basis of nerve supply, blood supply, lymphatic drainage and actions of extrinsic and intrinsic muscles of tongue • Describe hypoglossal nerve in detail & the anatomical basis of hypoglossal nerve palsy
Organs of hearing and equilibrium	03	• Describe & identify the parts, blood supply and nerve supply of external ear • Describe the boundaries, contents, relations and functional anatomy of middle ear and auditory tube • Describe the features of internal ear • Explain anatomical basis of otitis externa and otitis mediaExplain anatomical basis of myringotomy
Eyeball	02	• Describe parts and layers of eyeball • Describe the anatomical aspects of cataract, glaucoma & central retinal artery occlusion • Describe the position, nerve supply and actions of intraocular muscles

Back Region	02	• Describe the contents of the vertebral canal • Describe the boundaries and contents of Suboccipital triangle • Describe the position, direction of fibres, relations, nerve supply, actions of semispinalis capitis and splenius capitis
Head & neck Joints	01	• Describe the atlantooccipital joint & atlantoaxial joint with their movements.
Neuroanatomy Meninges & CSF	01	• Describe & identify various layers of meninges with its extent & modifications • Describe circulation of CSF with its applied anatomy
Spinal cord	03	• Describe external features of spinal cord • Describe extent of spinal cord in child & adult with its clinical implication • Draw & label transverse section of spinal cord at mid-cervical & midthoracic level • Enumerate ascending & descending tracts at mid thoracic level of spinal cord
Medulla oblongata	02	• Describe external features of medulla oblongata • Describe transverse section of medulla oblongata at the level of 1) pyramidal decussation, 2) sensory decussation 3) Inferior olivary nucleus • Enumerate cranial nerve nuclei in medulla oblongata with their functional group • Describe anatomical basis & effects of medial & lateral medullary syndrome
Pons	02	• Describe external features of pons • Describe transverse section of pons at the upper and lower level • Enumerate cranial nerve nuclei in pons with their functional group
Cerebellum	02	• Describe external & internal features of cerebellum • Describe connections of cerebellar cortex and intracerebellar nuclei • Describe anatomical basis of cerebellar dysfunction
Midbrain	02	• Describe external & internal features of midbrain • Describe internal features of midbrain at the level of superior & inferior colliculus • Describe anatomical basis & effects of Benedikt's and Weber's syndrome
Cranial nerve nuclei & Cerebral hemispheres	07	• Enumerate cranial nerve nuclei with its functional component • Describe surfaces, sulci, gyri, poles & functional areas of cerebral • Describe the white matter of cerebrum • Enumerate parts & major connections of basal ganglia & limbic lobe

		• Describe boundaries, parts, gross relations, major nuclei and connections of dorsal thalamus, hypothalamus, epithalamus, metathalamus and subthalamus • Describe & identify formation, branches & major areas of distribution of circle of Willis
Ventricular System	02	• Describe parts, boundaries & features of IIIrd, IVth & lateral ventricle • Describe anatomical basis of congenital hydrocephalus

Annexure III: Physiology

TOPIC	NUMBER OF LECTURES	DIVISION OF TOPICS
General Physiology	6	1.Describe the structure and functions of a mammalian cell 2. Describe and discuss the principles of homeostasis 3. Describe and discuss transport mechanisms across cell membranes 4. Describe intercellular communication 5. Describe the fluid compartments of the body, its ionic composition & measurements 6. Describe and discuss the molecular basis of resting membrane potential and action potential in excitable tissue
Blood - I	15	1.Describe the composition and functions of blood components 2.Discuss the origin, forms, variations and functions of plasma proteins 3.Describe and discuss the synthesis and functions of Haemoglobin and explain its breakdown. 4.Describe variants of haemoglobin 5.Describe RBC formation (erythropoiesis & its regulation) and its Functions 6.Describe WBC formation (granulopoiesis) and its regulation 7.Describe the formation of platelets, functions and variations
Nerve-muscle Physiology - I	15	1..Describe the structure and functions of a neuron and neuroglia; Discuss Nerve Growth Factor & other growth factors/cytokines 2. Describe the types, functions & properties of nerve fibers 3. Describe the degeneration and regeneration in peripheral nerves
Blood - II		1. Describe the physiological basis of hemostasis and, anticoagulants. 2.Define and classify different types of immunity. 3.Describe the development of immunity and its regulation 4.Describe steps for reticulocyte and platelet count
Nerve-muscle Physiology - II		1.Describe the structure of neuro-muscular junction and transmission of impulses 2.Describe the different types of muscle fibres and their structure

		3.Describe action potential and its properties in different muscle types (skeletal & smooth) 4.Describe the molecular basis of muscle contraction in skeletal and in smooth muscles
Cardiovascular system - I	20	1.Describe the functional anatomy of heart including chambers, sounds; and Pacemaker tissue and conducting system. 2.Discuss the events occurring during the cardiac cycle 3.Describe generation, conduction of cardiac impulse 4.Describe abnormal ECG, arrythmias, heart block and myocardial Infarction
Cardiovascular system – II		1.Describe and discuss local and systemic cardiovascular regulatory mechanisms 2.Describe the factors affecting heart rate, regulation of cardiac output & blood pressure
Respiratory system – I	15	1.Describe the functional anatomy of respiratory tract 2.Describe the mechanics of normal respiration, pressure changes during ventilation, lung volume and capacities,alveolar surface tension, compliance, airway resistance, ventilation, V/P ratio, diffusion capacity of lungs
Cardiovascular system – III		1.Describe & discuss regional circulation including microcirculation, lymphatic circulation, coronary, cerebral, capillary, skin, foetal, pulmonary and splanchnic circulation 2.Describe the patho-physiology of shock, syncope and heart failure
Respiratory system – II		1.Describe and discuss the transport of respiratory gases: Oxygen and Carbon dioxide 2.Describe and discuss the physiology of high altitude and deep sea diving
Renal Physiology - I	15	1.Describe structure and function of kidney 2.Describe the structure and functions of juxta glomerular apparatus and role of renin-angiotensin system 3.Describe the mechanism of urine formation involving processes of filtration, tubular reabsorption & secretion; concentration and diluting mechanism 4.Describe & discuss the significance & implication of Renal clearance

Gastrointestinal Tract – I		1.Describe the structure and functions of digestive system 2.Describe the composition, mechanism of secretion, functions, and regulation of saliva, gastric, pancreatic, intestinal juices and bile secretion 3.Describe GIT movements, regulation and functions. Describe defecation reflex. Explain role of dietary fibre. 4.Describe the source of GIT hormones, their regulation and functions
Renal Physiology – II		1.Describe the innervations of urinary bladder, physiology of micturition and its abnormalities
Gastrointestinal Tract - II		1.Describe & discuss the structure and functions of liver and gall bladder
Reproductive Physiology - I	10	1.Describe and discuss sex determination; sex differentiation and their abnormities and outline psychiatry and practical implication of sex determination. 2.Describe and discuss puberty: onset, progression, stages; early and delayed puberty and outline adolescent clinical and psychological association. 3.Describe male reproductive system: functions of testis and control of spermatogenesis & factors modifying it and outline its association with psychiatric illness
Endocrine system - I	15	1.Describe & differentiate the mechanism of action of steroid, protein and amine hormones 2.Describe the synthesis, secretion, transport, physiological actions, regulation and effect of altered (hypo and hyper) secretion of pituitary gland and hypothalamus
Reproductive Physiology - II		1.Describe female reproductive system: (a) functions of ovary and its control; (b) menstrual cycle - hormonal, uterine and ovarian changes 2.Describe and discuss the physiological effects of sex hormones 3.Describe and discuss the effects of removal of gonads on physiological functions 4.Describe and discuss the physiology of pregnancy, parturition & lactation and outline the psychology and psychiatry-disorders associated with it.
Endocrine system – II		1.Describe the synthesis, secretion, transport, physiological actions, regulation and effect of altered (hypo and hyper) secretion of thyroid gland,

		parathyroid gland, adrenal gland, pancreas 2.Describe the physiology of bone and calcium metabolism
Neurophysiology - I	30	1.Describe and discuss the organization of nervous system 2.Describe and discuss the functions and properties of synapse, reflex, receptors 3.Describe and discuss somatic sensations & sensory tracts 4.Describe and discuss motor tracts, mechanism of maintenance of tone, control of body movements, posture and equilibrium & vestibular apparatus
Integrated Physiology – I	9	1.Describe physiology of Infancy 2.Describe and discuss physiology of aging; free radicals and antioxidants
Neurophysiology – II		1.Describe and discuss structure and functions of reticular activating system, autonomic nervous system (ANS) 2.Describe and discuss functions of cerebral cortex, basal ganglia, thalamus, hypothalamus, cerebellum and limbic system and their abnormalities 3.Describe and discuss behavioural and EEG characteristics during sleep and mechanism responsible for its production 4.Describe and discuss the physiological basis of memory, learning and speech
Neurophysiology – III		1.Describe and discuss perception of smell and taste sensation 2.Describe and discuss patho-physiology of altered smell and taste sensation Describe and discuss functional anatomy of ear and auditory pathways & physiology of hearing 3.Describe and discuss functional anatomy of eye, physiology of image formation, physiology of vision including colour vision, refractive errors, colour blindness, physiology of pupil and light reflex 4.Describe and discuss the physiological basis of lesion in visual pathway
Integrated Physiology – II		1.Describe and discuss mechanism of temperature regulation 2.Describe and discuss adaptation to altered temperature (heat and cold) 3.Describe and discuss mechanism of fever, cold injuries and heat stroke
Integrated Physiology – III		1.Describe and discuss physiological consequences of sedentary lifestyle 2.Discuss & compare cardio-respiratory changes in exercise (isometric and

		isotonic) with that in the resting state and under different environmental conditions (heat and cold) 3.Discuss the concept, criteria for diagnosis of Brain death and its Implications

Annexure IV: Biochemistry

TOPIC	NUMBER OF LECTURES	DIVISION OF TOPICS
Cell	2	Structure and Function of Cell Structure and function of Subcellular Organelles Cell Membrane – Function
Chemistry of Carbohydrate	3	Monosaccharide Disaccharide Polysaccharide
Chemistry of Lipids	3	Simple Lipid Compound Lipid Derived Lipids
Chemistry of Proteins	4	Amino Acids – Classification and properties Proteins – Classification and structural organization Plasma Protein
Enzymes	4	Enzyme Isoenzyme and Coenzyme Basic principle of Enzyme activity Enzyme Inhibition Application of enzymes
Biological Oxidation	2	Bioenergetics Electron Transport Chain Oxidative Phosphorylation
Vitamins	5	Fat and Water Soluble Vitamins
Metabolism of Carbohydrate	6	Digestion, Absorption and storage of carbohydrate Glycolysis TCA Cycle Gluconeogenesis Glycogen Metabolism HMP Shunt Regulation of Blood Glucose Level

		Diabetes Mellitus Galactose and Fructose Metabolism
Metabolism of Lipids	6	Digestion, Absorption and storage of Lipids Triglyceride Metabolism Fatty Acid Metabolism Cholesterol Metabolism Lipoprotein Metabolism Prostaglandins Obesity and Atherosclerosis
Metabolism of Protein	6	Digestion, Absorption of Proteins Nitrogen Metabolism and Urea Cycle Metabolism of Individual Amino Acid and associated disorder
Integration of Metabolism	1	Integration of Metabolism in Fed and Fasting
Mineral Metabolism	4	Metabolism, Homeostasis and functions of minerals and their associated disorders
Nutrition	3	Importance of various dietary components and dietary fibres Protein Energy Malnutrition Balance Diet
Chemistry of Nucleic Acid	3	Structure and function of nucleic acid
Metabolism of Nucleic Acid	3	Metabolic of purine and pyrimidine and associated disorders
Genetics	6	Replication, Transcription and Translation in Eukaryotes and Prokaryotes Genetic Code and Mutation Protein Targeting
Molecular Biology	6	Regulation of gene expression in prokaryotes and eukaryotes Recombinant DNA Technology Human Genome Project and Gene Therapy
Chemistry and Metabolism of Hemoglobin	4	Chemistry and Metabolism of Haemoglobin and associated disorder
Organ Function Test	4	Function, tests and associated disorder of Liver, Kidney, Thyroid and Adrenal

		Gland
Immunology	3	Cellular and Humoral Immunity and vaccine Development
Water and Electrolyte, Acid Base Balance and Imbalance	3	Water and Electrolyte, Acid Base Balance and their associated disorder

TUTORIAL: Biochemistry

01. Functions and components of extracellular matrix
02. Involvement of ECM components in health and disease
03. Interpret laboratory results of enzyme activity
04. Interpret results of blood glucose levels and other laboratory investigations related to disorders of carbohydrate metabolism
05. Interpret laboratory results of analytes associated with metabolism of Lipids
06. Interpret laboratory results of analytes associated with metabolism of Protein
07. Interpret laboratory results of analytes associated with Gout and Lesch Nyhan Syndrome
08. Interpret results of arterial blood gas analysis in various disorders
09. Xenobiotic Metabolism
10. Role of free radicals and antioxidants in health and disease
11. Advice diet plan for childhood, adults, pregnancy and various diseases
12. Biochemistry of cancer
13. Cerebrospinal Fluid
14. Calculate energy content of different food items

Annexure V: Community Medicine

TOPIC	NUMBER OF LECTURES	DIVISION OF TOPIC
Concept of Health and Disease	10	1. Define and describe the concept of Public Health 2. Define health; describe the concept of holistic health including concept of spiritual health and the relativeness & determinants of health 3. Describe the characteristics of agent, host and environmental factors in health and disease and the multi factorial etiology of disease 4. Describe and discuss the natural history of disease 5. Describe the application of interventions at various levels of prevention 6. Describe and discuss the concepts, the principles of Health promotion and Education, IEC and Behavioral change communication (BCC) 7. Enumerate and describe health indicators 8. Describe the Demographic profile of India and discuss its impact on health 9. Demonstrate the role of effective Communication skills in health in a simulated environment 10. Demonstrate the important aspects of the doctor patient relationship in a simulated environment
Relationship of Social and Behavioural to Health and Disease	05	1. Describe the steps and perform clinico socio-cultural and demographic assessment of the individual, family and community 2. Describe the socio-cultural factors, family (types), its role in health and disease & demonstrate in a simulated environment the correct assessment of socio-economic status 3. Describe and demonstrate in a simulated environment the assessment of barriers to good health and health seeking behaviour 4. Describe social psychology, community behaviour and community relationship and their impact on health and disease 5. Describe poverty and social security measures and its relationship to health and disease
Principals of Health	03	1. Describe various methods of health education with their advantages and

promotion and Education		limitations 2. Describe the methods of organizing health promotion and education and counselling activities at individual family and community settings 3. Demonstrate and describe the steps in evaluation of health promotion and education program
Environmental Health Problems	16	1. Describe the health hazards of air, water, noise, radiation and pollution 2. Describe concepts of safe and wholesome water, sanitary sources of water, water purification processes, water quality standards, concepts of water conservation and rainwater harvesting 3. Describe the aetiology and basis of water borne diseases /jaundice/hepatitis/ diarrheal diseases 4. Describe the concept of solid waste, human excreta and sewage disposal 5. Describe the standards of housing and the effect of housing on health 6. Describe the role of vectors in the causation of diseases. Also discuss National Vector Borne disease Control Program 7. Identify and describe the identifying features and life cycles of vectors of Public Health importance and their control measures 8. Describe the mode of action, application cycle of commonly used insecticides and rodenticides
Nutrition	09	1. Describe the common sources of various nutrients and special nutritional requirements according to age, sex, activity, physiological conditions 2. Describe and demonstrate the correct method of performing a nutritional assessment of individuals, families and the community by using the appropriate method 3. Define and describe common nutrition related health disorders (including macro-PEM, Micro-iron, Zn, iodine, Vit. A), their control and management 4. Plan and recommend a suitable diet for the individuals and families based on local availability of foods and economic status, etc in a simulated environment

		5. Describe the methods of nutritional surveillance, principles of nutritional education and rehabilitation in the context of sociocultural factors. 6. Enumerate and discuss the National Nutrition Policy, important national nutritional Programs including the Integrated Child Development Services Scheme (ICDS) etc 7. Describe food hygiene 8. Describe and discuss the importance and methods of food fortification and effects of additives and adulteration
Demography and Vital statistics	07	1. Define and describe the principles of Demography, Demographic cycle, Vital statistics 2. Define, calculate and interpret demographic indices including birth rate, death rate, fertility rates 3. Enumerate and describe the causes of declining sex ratio and its social and health implications 4. Enumerate and describe the causes and consequences of population explosion and population dynamics of India 5. Describe the methods of population control 6. Describe the National Population Policy 7. Enumerate the sources of vital statistics including census, SRS, NFHS, NSSO etc
Field Survey	02	1. Environmental Survey 2. Nutritional Survey