

SNJB's  
Smt.Kanchanbai Babulalji Abad Homoeopathic Medical College  
and Shri.R.P.Chordiya Hospital, Neminagar,Chandwad ( Nashik) 423101.

### Physiology including Biochemistry

#### ADVANCED TEACHING PLAN FOR ACADEMIC YEAR 2022-23.

#### Semester – I

Topic	No. of Lecture required	Teaching Learning Method
Cell ( General Physiology) The structure of cell and it's differentiation	20	Chalk – Talk method (black board / Lecture)  Group Discussion  Seminar  Tutorials  Debate  Multimedia presentation/OSCE
Tissue and organs of the body		
Biophysics – Bio – principles Units of concentrations of solutions.	15	
Ions, electrolyte and non electrolyte, filtration		
Diffusion	15	
Osmosis		
Ultra filtration		
Dialysis		
Surface tension, Adsorption		
Hydro trophy		
Donnan equilibrium		
Colloid	15	
<b>Body temperature and skin.</b> Factors affecting body temperature		
Regulation of body temperature		

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Topic	No. of Lecture required	Teaching Learning Method
thermogenesis		
Thermolysis		
Nervous system and thermotaxis		
Pyrexia (Fever)		
Structure of skin and its function		
Blood Composition and functions of blood	35	Chalk – Talk method (black board / Lecture)  Group Discussion  Seminar  Tutorials  Debate  Multimedia presentation/OSCE
Plasma proteins and its functions		
ESR and its Significance		
Co-agulation of blood		
Importance of homeostasis		
Blood volume and it's regulation		
Bone marrow, functions of bone-marrow		
Formed elements of blood, RBC – erythropoiesis, factor affecting erythro poiesis		
Haemoglobin – synthesis, types and functions		
Anaemia – cause types and clinical importance		

Topic	No. of Lecture required	Teaching Learning Method
White blood corpuscles		
Thrombocytes, functions of platelets		
Blood groups – different types		
Rh-blood group		
Hazards of mismatched blood transfusion		
Erythroblasto foetalis		
Body fluids		
<b>NERVE MUSCLE PHYSIOLOGY</b>	15	
Skeletal Muscle		
Mechanism of contraction		
Neuromuscular junction		
Characteristic Properties of skeletal muscles		
Characteristic Properties of skeletal muscles		
Nerve muscle physiology		
<b>Spleen &amp; lymph</b>		
Structure of spleen		
Functions of spleen		
Clinical aspect related to spleen		
Lymphatic capillaries		

Topic	No. of Lecture required	Teaching Learning Method
Composition of lymph		
Formation of lymph		
Lymph node / lymph gland		
Lymph gland – structure		
Functions of lymph nodes		
Clinical aspect or physiological importance of lymph		
<b>Clinical Physiology</b>		
Clinical Physiology and approach to patient	10	
General concept of examination		
Examination of muscle and joints	10	
<b>Practical :-</b>	05	DOAP/OSCE/OSPE
Study of compound microscope		
Collection of Blood sample	05	DOAP/OSCE/OSPE
Estimation of Hemoglobin concentration	05	
Determination of Haematocrit	05	DOAP/OSCE/OSPE
Haemocytometry	05	
Total RBC count	10	DOAP/OSCE/OSPE
Determination of RBC indices	05	

Topic	No. of Lecture required	Teaching Learning Method
Total Leucocyte count (TLC)	10	
Preparation & Examination of Blood smear	10	
Diffreential Leucocyte count (DLC)	10	DOAP/OSCE/OSPE
Absolute eosinophil Count	05	DOAP/OSCE/OSPE
Determination of Erythrocyte Sedimentation Rate	05	DOAP/OSCE/OSPE
Determination of Blood Groups	05	DOAP/OSCE/OSPE
Determination of Bleeding time and coagulation time	05	DOAP/OSCE/OSPE
4 <sup>th</sup> month - 5 days PA		
6 <sup>th</sup> Month – TT including viva voce		

Topic	No. of Lecture required	Teaching Learning Method
<b><u>Semester – 2</u></b>		
<b>Cardio vascular system</b>	20	Chalk – Talk method (black board / Lecture)  Group Discussion  Seminar  Tutorials  Debate  Multimedia presentation/OSCE
Anatomical consideration of heart, valves of heart Histology of cardio-vascular system		
Special junctional tissue of heart		
Heart block		
Basic Properties of cardiac muscle and it's structure		
Cardiac cycle		
Cardiac cycle		
Heart sounds		
ECG – Introduction		
ECG – leads, waves,		
Nerves of heart and their action		
Heart-rate & it's regulation		
Cardiac output and it's regulation		
Measurement and recording of blood pressure		
Regulation of blood pressure		
Radial pulse		

Topic	No. of Lecture required	Teaching Learning Method
Coronary circulation		
Cerebral circulation		
Pulmonary circulation and hepatic circulation		
<b>Respiratory system</b>	<b>25</b>	Chalk – Talk method (black board / Lecture)
Introduction of respiratory system		Group Discussion Seminar Tutorials Debate Multimedia presentation/OSCE
Mechanism of breathing		
Motion of Ribs		
Spirometry		
Lung volumes & capacities		
Respiratory dead space		
02 - Transport		

Topic	No. of Lecture required	Teaching Learning Method
02 – Dissociation curve		
Carbon dioxide transport		
Control of respiration		
Nervous control & Chemical control		
Hypoxia		
Dyspnea		
Dysbarism		
Asphyxia		
Cyanosis		
Methods of artificial respiration.		
	35	



Topic	No. of Lecture required	Teaching Learning Method
CNS		
Neurons		
Properties of nerve fibers		
Synapse		
Reflex		
Receptors		
Brain Stem		
Medulla oblongata		
Pons		
Midbrain		
Cerebrum		

Topic	No. of Lecture required	Teaching Learning Method
Thalamus		
Hypothalamus		
Cerebral cortex		
Basal ganglia		
Limbic System		
Ascending tract		
Descending tract		
Upper & Lower Motor lesions		
<b>ENDOCRINE SYSTEM</b>	30	
Introduction Hormones Negative & positive feed Back mechanism		

Topic	No. of Lecture required	Teaching Learning Method
Anterior & posterior pituitary Anatomy / Histology		
Anterior Pituitary hormones		
Growth Hormone		
Applied physiology		
Posteriorpituitary Hormones Actions – ADH / Oxytocin		
Applied physiology Diabetes. Insipidus.		
Thyroid Gland Anatomical physiology		
Synthesis of Hormones		
Functions of hormones		
Applied physiology Hyper Thyroidism		
Hypo-thyroidism		

Topic	No. of Lecture required	Teaching Learning Method
Parathyroid Hormone		
Calcium Metabolism & Regulation of serum calcium		
Applied physiology		
Adrenal gland Adrenal cortex		
Action /functions of – Glucocorticoids		
Mineralo corticoids Androgen		
Applied Physiology		
Adrenal Medulla		
ANS Adrenalin & Nor adrenalin		
Clinical Physiology	10	DOAP/OSCE/OSPE
Blood Pressure recording		

Topic	No. of Lecture required	Teaching Learning Method
Radial Pulse		DOAP/OSCE/OSPE
ECG	05	DOAP/OSCE/OSPE
Clinical examination		
Respiratory system- Clinical examination ,spirometry ,Stethography	15	DOAP/OSCE/OSPE
<b>OPD ( Applied Physiology)</b>	<b>Total 90</b>	<b>DOAP</b>
CNS- Clinical examination	15	
Special senses- Clinical examination	15	
<b>9<sup>TH</sup> Month 5 Days PA</b>		
<b>12<sup>th</sup> month 10 Days TT ( Including Viva-voce)</b>		

Semester – 3

Topic	No. of Lecture required	Teaching Learning Method
<b>REPEODUCTIVE SYSTEM</b>	<b>15</b>	Chalk – Talk method (black board / Lecture)  Group Discussion  Seminar  Tutorials  Debate  Multimedia presentation/OSCE
Reproductive physiology male		
Testesteron / puberty		
Spermatogenesis		
Reproductive physiology - Female		
Oestrogen / Progesterom		
Menstrual cycle		
Sex determination & Sex differentiation		
Special senses vision – Introduction		
Eyeball – layers		
Innermost layer – Retina	<b>20</b>	
Optic – Pathway		
Lesion of optic pathway		
Mechanism of accommodation		
Visual transduction		

Topic	No. of Lecture required	Teaching Learning Method
Visual acuity		
Errors of refraction		
Hearing – introduction – Ear		
Middle ear		
Internal ear		
Cochlea		
Organ of corti		
Auditory pathway		
Deafness		
Test for deafness rinnes & webers test		
Taste (Gustation) - Tongue		
Taste buds		
Gustatory pathway		
Olfaction - Introduction		
Olfactory receptors		
Physiology of Olfaction		
Olfactory pathway		
Abnormalities of olfactory sensations		

Topic	No. of Lecture required	Teaching Learning Method
<b>DIGESTIVE SYSTEM</b>		Chalk – Talk method (black board / Lecture) Group Discussion Seminar Tutorials Debate Multimedia presentation/OSCE
Anatomical consideration of the digestive system	35	
Functions of digestive system		
Salivary glands		
Mastication, Deglutition		
Digestion		
Stomach Functions of stomach		
Composition & Functions of gastric juice		
Movements of stomach digestion		
Small intestine Pancreas – Mechanism of pancreatic Secretions		
Composition & functions of pancreatic juice - digestion		
Characters & composition of succus entricus		
Mechanism of secretion of succus entricus Digestion		
Bile Composition of bile function of bile,		



Topic	No. of Lecture required	Teaching Learning Method
bile salts / bile pigments		
Mechanism of storage of bile. Movements of gall bladder. Functions of gall bladder		
Movements of alimentary canal		
Movements of small intestine		
Movements of large intestine		
Hormones of Gastric secretion		
Tutorial on GIT		
Seminar on GIT		
Digestion & absorption of CHO, Proteins, Lipids		
<b>Nutrition</b>		
Food Vs Nutrition		
Constituents of a Normal diet		
Nutritional needs of the body in terms of calories		
Balanced diet		
Principles of diet planning		
Applied aspect obesity, Kwashiorkar, Marasmus		
<b>Excretion</b>	20	
Kidneys		
Juxtaglomerular apparatus		
Renal blood flow		

Topic	No. of Lecture required	Teaching Learning Method
Function of kidney and glomerulus		
Selective reabsorption		
Tubular secretion		
Formation of new substances		
Renal functional test		
Volume and characteristic of urine		
Composition of urine		
Glycosuria		
Micturation		
Mechanism of micturation		
Mechanism of micturation		
Vitamins & kidney		
Reaction of urine		
Factors controlling volume of urine		
Abnormal volume of urine		
Introduction		
Introduction		
Carbohydrate – classification		
Digestion & absorption		
Metabolism		
Kreb cycle		

Topic	No. of Lecture required	Teaching Learning Method
Protein – Classification		
Essential amino acids		
<b>Practical :-</b>		
Demonstration & uses of Instruments	05	DOAP/OSCE/OSPE
Qualitative analysis of carbohydrates, proteins and lipids	10	
Normal characteristics of urine	04	
Abnormal constituents of urine	10	
Quantitative for estimation of glucose, total proteins , Uric acid in blood.	05	
LFT	04	
KFT	04	
Lipid profile	04	
Interpretation and discussion of results of Biochemical tests.	04	
<b>Clinical Physiology:-</b>		
GIT- clinical examinations		
Reproductive system-diagnosis of pregnancy	05	
Special senses- Clinical examination	15	
<b>OPD</b>	90 including both semester	

Topic	No. of Lecture required	Teaching Learning Method
Endocrine influence on CHO. Metabolism. Regulation of CHO. Metabolism.		
Lipids Classification		
Essential fatty acids steroids		
Digestion & absorption		
Metabolism B-oxidation of fatty acids Bio synthesis of lipids		
Regulation of lipid Metabolism.		
Protein – Classification		
Essential amino acids		
Digestion & absorption		
Metabolism		
Krebs cycle		
Endocrine influence on CHO. Metabolism. Regulation of CHO. Metabolism.		
Lipids Classification		
Essential fatty acids steroids		
Digestion & absorption		
Metabolism B-oxidation of fatty acids Bio synthesis of lipids		
Regulation of lipid Metabolism.		

Topic	No. of Lecture required	Teaching Learning Method
14 <sup>th</sup> Month 5 days PA		
18 <sup>th</sup> Month 12 days TT ( Including Viva voce and University exams)		



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