Number	structure and functions	Domain K/S/A/C	Level K/KH/ SH/P	Core (Y/N)	Teaching-Learning Methods	Assessment Methods	Number required to certify P	Vertical Integration	Horizontal Integration
Topic: General Physiology		**Number of competencies: (09)**						**Number of procedures that require**	
PY1.1	**Describe the structure and functions of a mammalian cell**	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.1.1	List the components of a cell	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.1.2	Discuss the structure of cell membrane and list the functions of cell membrane	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.1.3	Enumerate the lipids present in the cell membrane and discuss their role.	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.1.4	Enumerate the types of proteins present in the cell membrane and list their function.	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.1.5	Describe the structure and function of nucleus	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.1.6	Describe the structure and function of endoplasmic reticulum	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.1.7	Describe the structure and function of ribosome	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.1.8	Describe the structure and function of golgi appartus	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.1.9	Describe the structure and function of mitochondria	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.1.10	Describe the structure and function of lysosome	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.1.11	Describe the structure and function of peroxisomes	K	KH	Y	Lecture	Written/Viva voce			
PY1.1.12	Describe the structure and function of secretory granules	K	KH	Y	Lecture	Written/Viva voce			
PY1.1.13	Describe the structure and function of cytoskelton	K	KH	Y	Lecture	Written/Viva voce			
PY1.1.14	Discuss exocytosis and endocytosis	K	KH	Y	Lecture	Written/Viva voce			
PY1.2	**Describe and discuss the principles of homeostasis.**	K	KH	Y	Lecture	Written/Viva voce			
PY1.2.1	Describe the concept of internal enviornment	K	KH	Y	Lecture	Written/Viva voce			
PY1.2.2	Define homeostasis	K	KH	Y	Lecture	Written/Viva voce			

PY1.2.3	Explain components of homeostatic control sytems	K	KH	Y	Lecture	Written/Viva voce			
PY1.2.4	Describe the concept of negative-feedback systems with relevant examples	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.2.5	Describe the concept of positive feedback with relevant examples	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.2.6	Explain the consequences of failure of homeostatic mechanisms	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.3	**Describe intercellular communication.**	K	KH	Y	Lecture	Written/Viva voce			
PY1.3.1	Describe the variousm modes of intercellular signaling (autocrine, paracrine,endocrine and neuroendocrine signaling)	K	KH	Y	Lecture	Written/Viva voce			
PY1.3.2	Describe the gap junctions	K	KH	Y	Lecture	Written/Viva voce			
PY1.3.3	Define signal transduction	K	KH	Y	Lecture	Written/Viva voce			
PY1.3.4	Define receptorand their types (cell-surface receptors (G-protein-coupled receptors, ion channel linked receptors, and enzyme-linked receptors) and intracellular receptors).	K	KH	Y	Lecture	Written/Viva voce			
PY1.3.5	Describe the types and role of second messangers and their mechanism of action (protein kinase and Ca+2)	K	KH	Y	Lecture	Written/Viva voce			
PY1.4	**Describe apoptosis – programmed cell death.**	K	KH	Y	Lecture	Written/Viva voce		**Pathology**	
PY1.4.1	Define apoptosis – programmed cell death	K	KH	Y	Lecture	Written/Viva voce			
PY1.4.2	Describe the theories to explains apoptosis	K	KH	Y	Lecture	Written/Viva voce			
PY1.4.3	Describe the basis uncontriolled proliferation of cells in relation to apoptosis	K	KH	Y	Lecture	Written/Viva voce			
PY1.5	**Describe and discuss transport mechanisms across cell membranes.**	K	KH	Y	Lecture	Written/Viva voce			
PY1.5.1	Describe Diffusion (Diffusion Through the Lipid Bilayer & Diffusion of Ions Through Ion Channels	K	KH	Y	Lecture	Written/Viva voce			
PY1.5.2	Describe Facilitated Diffusion	K	KH	Y	Lecture	Written/Viva voce			
PY1.5.3	Define Active Transport	K	KH	Y	Lecture	Written/Viva voce			
PY1.5.4	Describe primary and secondary active transport mechanism	K	KH	Y	Lecture	Written/Viva voce			
PY1.5.5	Describe Osmosis	K	KH	Y	Lecture	Written/Viva voce			
PY1.5.6	Extracellular Osmolarity and Cell Volume	K	KH	Y	Lecture	Written/Viva voce			
PY1.5.7	Discuss Endocytosis and Exocytosis	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.6	**Describe the fluid compartments of the body, its ionic composition & measurements.**	K	KH	Y	Lecture/small group	Written/Viva voce		**Biochemistry**	

PY1.6.1	Describe the various various compartments of the body (intracellular fluid & extracellular fluid)	K	KH	Y	Lecture	Written/Viva voce			
PY1.6.2	Describe the percentage of fluid distributed in these compartment (age wise,gender wise & effect of BMI).	K	KH	Y	Lecture	Written/Viva voce			
PY1.6.3	Explain the causes of the altered fluid volume distribution in various compartment (Edema)	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.6.4	Describe the electrolytes composition of the various compartmnets.	K	KH	Y	Lecture	Written/Viva voce			
PY1.6.5	Explain the basis and substances used for measurement of body fluid volumes	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.7	**Describe the concept of pH & Buffer systems in the body.**	K	KH	Y	Lecture/small group	Written/Viva voce		**Biochemistry**	
PY1.7.1	Define pH & Buffer.	K	KH	Y	Lecture	Written/Viva voce			
PY1.7.2	Explain the normal value and range of pH compatible for survival.	K	KH	Y	Lecture	Written/Viva voce			
PY1.7.3	Explainthe effect of deviation of pH on cellular functioning,	K	KH	Y	Lecture	Written/Viva voce			
PY1.7.4	Describe the buffer present in the ECF and intracellularly	K	KH	Y	Lecture	Written/Viva voce			
PY1.8	**Describe and discuss the molecular basis of resting membrane potential and action potential in excitable tissue.**	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.8.1	Explain the term Diffusion and determinats for diffusion (Fick's law of diffusion)	K	KH	Y	Lecture	Written/Viva voce			
PY1.8.2	Explain the term osmosis and osmotic pressure and effective osmole.	K	KH	Y	Lecture	Written/Viva voce			
PY1.8.3	Descibe the solutes contibuting to plasma osmolality.	K	KH	Y	Lecture	Written/Viva voce			
PY1.8.4	Descibe the effect of hypotonicity and hypertonicity on cellular function	K	KH	Y	Lecture	Written/Viva voce			
PY1.8.5	Explain the differnce in the ionic comostion of ECF and ICF.	K	KH	Y	Lecture	Written/Viva voce			
PY1.8.6	Explain the Donnan effect and basis of genesis of RMP (equilibrium potential & Nernst equation)	K	KH	Y	Lecture/small group	Written/Viva voce			
PY1.9	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.	K	KH	Y	Lecture/small group	Written/Viva voce			
Topic: Hematology		**Number of competencies: (13)**				**Number of procedures for certification: NIL**			
Number	**COMPETENCY** **The student should be able to**	**Domain K/S/A/C**	**Level K/KH/ SH/P**	**Core (Y/N)**	**Teaching-Learning Methods**	**Assessment Methods**	**Number required to certify P**	**Vertical Integration**	**Horizontal Integration**
PY2.1	**Describe the composition and functions of blood components**	K	KH	Y	Lecture	Written/Viva voce			

PY2.1.1	Describe the formed elements of blood.	K	KH	Y	Lecture	Written/Viva voce			
PY2.1.2	Enumerate the functions of blood components.	K	KH	Y	Lecture	Written/Viva voce			
PY2.1.3	Differentiate between blood , plasma and serum.	K	KH	Y	Lecture	Written/Viva voce			
PY2.1.4	List the major plasma proteins in blood.	K	KH	Y	Lecture	Written/Viva voce			
PY2.1.5	Enumerate the functions of plasma proteins.	K	KH	Y	Lecture	Written/Viva voce			
PY2.2	**Discuss the origin, forms, variations and functions of plasma proteins.**	K	KH	Y	Lecture	Written/Viva voce		Biochemistry	
PY2.2.1	List the major plasma proteins in blood.	K	KH	Y	Lecture	Written/Viva voce			
PY2.2.2	Enumerate the functions of plasma proteins.	K	KH	Y	Lecture	Written/Viva voce			
PY2.2.3	Define plasmapheresis and its uses.	K	KH	Y	Lecture	Written/Viva voce			
PY2.2.4	List the properties of plasma proteins .	K	KH	Y	Lecture	Written/Viva voce			
PY2.2.5	List the changes in plasma proteins that occur in health and diseases.	K	KH	Y	Lecture	Written/Viva voce			
PY2.3	**Describe and discuss the synthesis and functions of Haemoglobin and explain its breakdown. Describe variants of haemoglobin**	K	KH	Y	Lecture	Written/Viva voce		Biochemistry	
PY2.3.1	Define the morphology of red blood cell.	K	KH	Y	Lecture	Written/Viva voce			
PY2.3.2	Define the number of red blood cells and the quantity of hemoglobin in the blood.	K	KH	Y	Lecture	Written/Viva voce			
PY2.3.3	Enumerate the steps in biosynthesis of hemoglobin.	K	KH	Y	Lecture	Written/Viva voce			
PY2.3.4	Draw the structure of hemoglobin.	K	KH	Y	Lecture	Written/Viva voce			
PY2.3.5	Describe the fate of Haemoglobin.	K	KH	Y	Lecture	Written/Viva voce			
PY2.3.6	Describe the functions of Haemoglobin.	K	KH	Y	Lecture	Written/Viva voce			
PY2.3.7	Describe the normal and abnormal variants of Haemoglobin.	K	KH	Y	Lecture	Written/Viva voce			
PY2.4	**Describe RBC formation (erythropoiesis & its regulation) and its functions.**	K	KH	Y	Lecture	Written/Viva voce			
PY2.4.1	Describe the normal shape of RBC .	K	KH	Y	Lecture	Written/Viva voce			
PY2.4.2	Describe the stages of development of RBC formation.	K	KH	Y	Lecture	Written/Viva voce			
PY2.4.3	Describe the factors regulating erythropoiesis.	K	KH	Y	Lecture	Written/Viva voce			
PY2.4.4	Describe the sources of erythropoietin.	K	KH	Y	Lecture	Written/Viva voce			
PY2.4.5	Describe the role of erythropoietin in erythropoiesis.	K	KH	Y	Lecture	Written/Viva voce			
PY2.4.6	List the functions of red blood cells.	K	KH	Y	Lecture	Written/Viva voce			

PY2.5	**Describe different types of anaemias & Jaundice**	K	KH	Y	Lecture	Written/Viva voce		Pathology	Biochemistry
PY2.5.1	Define anemia.	K	KH	Y	Lecture	Written/Viva voce			
PY2.5.2	Describe different types of anaemias on the basis of their morphology (Wintrobe's) with examples.	K	KH	Y	Lecture	Written/Viva voce			
PY2.5.3	Describe different types of anaemias on the basis of their etiology (Whitby's) with examples.	K	KH	Y	Lecture	Written/Viva voce			
PY2.5.4	Describe megaloblastic anaemia.	K	KH	Y	Lecture	Written/Viva voce			
PY2.5.5	Describe the iron deficiency anaemia.	K	KH	Y	Lecture	Written/Viva voce			
PY2.5.6	Describe the general clinical features of anaemia.	K	KH	Y	Lecture	Written/Viva voce			
PY2.5.7	Describe the effect of anaemia on circulatory system.	K	KH	Y	Lecture	Written/Viva voce			
PY2.5.8	Define polycythemia.	K	KH	Y	Lecture	Written/Viva voce			
PY2.5.9	Describe the effect of polycythemia on circulatory system.	K	KH	Y	Lecture	Written/Viva voce			
PY2.5.10	Define jaundice.	K	KH	Y	Lecture	Written/Viva voce			
PY2.5.11	Classify different types of jaundice.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY2.5.12	Describe the biochemical tests done to investigate jaundice.	K	KH	Y	Lecture	Written/Viva voce			
PY2.5.13	Discuss the management of jaundice.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY2.6	**Describe WBC formation (granulopoiesis) and its regulation**	K	KH	Y	Lecture	Written/Viva voce			
PY2.6.1	Classify different types of white blood cells.	K	KH	Y	Lecture	Written/Viva voce			
PY2.6.2	Describe the stages of development of WBC formation (lecopoiesis).	K	KH	Y	Lecture	Written/Viva voce			
PY2.6.3	Describe the functions of white blood cells.	K	KH	Y	Lecture	Written/Viva voce			
PY2.6.4	Describe the physiological and pathological variations of total white blood cells.	K	KH	Y	Lecture	Written/Viva voce			
PY2.6.5	Describe the monocyte-macrophage cell system and its functions.	K	KH	Y	Lecture	Written/Viva voce			
PY2.7	**Describe the formation of platelets, functions and variations.**	K	KH	Y	Lecture	Written/Viva voce			
PY2.7.1	Describe the development and morphology of platelets.	K	KH	Y	Lecture	Written/Viva voce			
PY2.7.2	Describe the functions of platelets.	K	KH	Y	Lecture	Written/Viva voce			
PY2.7.3	Describe the early events in hemostasis and formation of platelet plug.	K	KH	Y	Lecture	Written/Viva voce			
PY2.7.4	Define thrombocytopenia.	K	KH	Y	Lecture	Written/Viva voce			
PY2.7.5	Define bleeding time and give its normal range.	K	KH	Y	Lecture	Written/Viva voce			
PY2.7.6	Describe thromboembolic conditions and their management .	K	KH	Y	Lecture	Written/Viva voce			

PY2.8	**Describe the physiological basis of hemostasis and, anticoagulants.Describe bleeding & clotting disorders (Hemophilia, purpura)**	K	KH	Y	Lecture	Written/Viva voce			
PY2.8.1	Enumerate the clotting factors.	K	KH	Y	Lecture	Written/Viva voce			
PY2.8.2	Describe the steps involved in the mechanism of clot formation.	K	KH	Y	Lecture	Written/Viva voce			
PY2.8.3	Describe the steps involved in intrinsic pathway of clot formation.	K	KH	Y	Lecture	Written/Viva voce			
PY2.8.4	Describe the steps involved in extrinsic pathway of clot formation.	K	KH	Y	Lecture	Written/Viva voce			
PY2.8.5	Discuss the physiological basis of intravascular anticoagulants.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY2.8.6	Describe the process of fibrinolysis.	K	KH	Y	Lecture	Written/Viva voce			
PY2.8.7	List the disorders affecting blood coagulation.	K	KH	Y	Lecture	Written/Viva voce			
PY2.8.8	Define hemophlia and classify its types.	K	KH	Y	Lecture	Written/Viva voce			
PY2.8.9	Define the term purpura.	K	KH	Y	Lecture	Written/Viva voce			
PY2.8.10	List the anticoagulants of clinical importance and describe their mechanism of action.	K	KH	Y	Lecture	Written/Viva voce			
PY2.8.11	Describe the screening tests of hemostasis.	K	KH	Y	Lecture	Written/Viva voce			
PY2.8.12	Differentiate between bleeding disorders and clotting disorders.	K	KH	Y	Lecture	Written/Viva voce			
PY2.9	**Describe different blood groups and discuss the clinical importance of blood grouping, blood banking and transfusion.**	K	KH	Y	Lecture	Written/Viva voce		Pathology	
PY2.9.1	Classify blood groups.	K	KH	Y	Lecture	Written/Viva voce			
PY2.9.2	Define Landsteiner's laws.	K	KH	Y	Lecture	Written/Viva voce			
PY2.9.3	Describe Rh incompatibility.	K	KH	Y	Lecture	Written/Viva voce			
PY2.9.4	Describe pathophysiology of Rh incompatibility including erythroblastosis fetalis.	K	KH	Y	Lecture	Written/Viva voce			
PY2.9.5	Discuss the treatment and prevention of erythroblastosis fetalis.	K	KH	Y	Lecture	Written/Viva voce			
PY2.9.6	List the clinical importance of blood grouping .	K	KH	Y	Lecture	Written/Viva voce			
PY2.9.7	List the indications for blood transfusion .	K	KH	Y	Lecture	Written/Viva voce			
PY2.9.8	Describe the different transfusion reactions.	K	KH	Y	Lecture	Written/Viva voce			
PY2.9.9	What is cross-matching and what is its significance.	K	KH	Y	Lecture	Written/Viva voce			
PY2.9.10	Describe the method of collection of blood,its storage and changes that occur during storage.	K	KH	Y	Lecture	Written/Viva voce			
PY2.10	**Define and classify different types of immunity. Describe the development of immunity and its regulation.**	K	KH	Y	Lecture	Written/Viva voce			
PY2.10.1	Define immunity.	K	KH	Y	Lecture	Written/Viva voce			

PY2.10.2	Differentiate between active and passive immunity.	K	KH	Y	Lecture	Written/Viva voce			
PY2.10.3	Differentiate between primary and secondary immune response.	K	KH	Y	Lecture	Written/Viva voce			
PY2.10.4	Describe the Cell mediated immunity and give suitable examples.	K	KH	Y	Lecture	Written/Viva voce			
PY2.10.5	Describe the Humoral immunity and give suitable examples.	K	KH	Y	Lecture	Written/Viva voce			
PY2.10.6	Describe the Complement system.	K	KH	Y	Lecture	Written/Viva voce			
PY2.10.7	Define autoimmunity.	K	KH	Y	Lecture	Written/Viva voce			
PY2.10.8	Define immune tolerance.	K	KH	Y	Lecture	Written/Viva voce			
PY2.10.9	Describe different types of T lymphocytes and their functions.	K	KH	Y	Lecture	Written/Viva voce			
PY2.10.10	Define allergy.	K	KH	Y	Lecture	Written/Viva voce			
PY2.10.11	Explain hypersensitivity reaction and what are its types .	K	KH	Y	Lecture	Written/Viva voce			
PY2.10.12	Discuss various types of hypersensitivity reactions.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY2.11	**Estimate Hb, RBC, TLC, RBC indices, DLC, Blood groups, BT/CT**	S	SH	Y	DOAP sessions	Practical/OSPE/Viva		Pathology	
PY2.11.1	Estimate the hemoglobin using Sahli's mehod.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.2	Discuss the other methods for estimation of hemoglobin.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.3	Enumerate various conditions in which Hb concentration is altered.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.4	List the precautions to be followed during procedure.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.5	Perform the total RBC count in the given blood sample.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.6	Calculate the total RBC count in the given blood sample.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.7	List the precautions to be taken for performing RBC count.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.8	Mention the normal range of RBC count in Male and Female.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.9	Discuss the reason for variations in RBC count in physiological and pathological conditions.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.10	Perform the total WBC count in the given blood sample.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.11	Calculate the total WBC count in the given blood sample.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.12	List the precautions to be taken for performing WBC count.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.13	Mention the normal range of total WBC count in adults.	KK	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.14	Discuss the reason for alteration in WBC count in physiological and pathological conditions.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.15	Discuss the blood indices and calculate MCV,MCH and MCHC.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			

PY2.11.16	Define colour index.(CI)	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.17	Determine the blood group by using anti sera-A , B and D.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.18	List the precautions to be taken for performing blood grouping.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.19	List the clinical importance of blood grouping .	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.20	List the indications for blood transfusion .	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.21	Describe the different transfusion reactions.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.22	What is cross-matching and what is its significance.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.23	Determine the bleeding time by Duke's capillary method.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.24	Determine the clotting time by Ivy's method.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.25	Mention the normal range of bleeding time and clotting time.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.26	Interpret the observed bleeding time and clotting time.	K	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.27	Enumerate the conditions in which bleeding time and clotting time is increased.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.28	List the precautions to be taken for performing bleeding time and clotting time.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.29	Discuss the importance of bleeding time and clotting time in hemostasis and in patients with hematological disorders.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.30	Prepare a peripheral blood smear and stain the slide for differential leucocyte count (DLC)	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.31	Identify the types of WBC in blood smear.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.32	Determine the percentage of each type of WBC in counted cells of blood smear.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.33	Discuss the conditons for alteration in percentage of types of WBC in physiological and pathological conditions.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.11.34	List the precautions to be taken during preparation of peripheral blood smear.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY2.12	**Describe test for ESR, Osmotic fragility, Hematocrit. Note the findings and interpret the test results etc.**	K	KH	Y	Demonstration session	Written /Viva voce		Pathology	
PY2.12.1	To understand and explain the procedure of determination of osmotic fragility.	K	KH	Y	Demonstration session	Written /Viva voce			
PY2.12.2	Explain the significance of determination of osmotic fragility in health and disease.	K	KH	Y	Demonstration session	Written /Viva voce			
PY2.12.3	To understand and explain the procedure of determination of ESR.	K	KH	Y	Demonstration session	Written /Viva voce			
PY2.12.4	Explain the significance of determination of ESR in health and disease.	K	KH	Y	Demonstration session	Written /Viva voce			

PY2.12.5	To understand and explain the procedure of determination of Hematocrit.	K	KH	Y	Demonstration session	Written /Viva voce			
PY2.12.6	Explain the significance of determination of hematocrit in health and disease.	K	KH	Y	Demonstration session	Written /Viva voce			
PY2.13	**Describe steps for reticulocyte and platelet count**	K	KH	Y	Demonstration session	Written /Viva voce		Pathology	
PY2.13.1	Describe the morphology of reticulocyte.	K	KH	Y	Demonstration session	Written /Viva voce			
PY2.13.2	To understand and explain the procedure of determination of reticulocyte.	K	KH	Y	Demonstration session	Written /Viva voce			
PY2.13.3	Identify and calculate the reticulocyte count.	K	KH	Y	Demonstration session	Written /Viva voce			
PY2.13.4	Explain the causes of alteration of reticulocyte count.	K	KH	Y	Demonstration session	Written /Viva voce			
PY2.13.5	Explain the significance of determination of platelet count.	K	KH	Y	Demonstration session	Written /Viva voce			
PY2.13.6	To understand and explain the procedure of determination of platelet count..	K	KH	Y	Demonstration session	Written /Viva voce			
PY2.13.7	Estimate platelet count.	K	KH	Y	Demonstration session	Written /Viva voce			
PY2.13.8	List the precautions to be taken during performing platelet count.	K	KH	Y	Demonstration session	Written /Viva voce			
PY2.13.9	Mention the normal value of platelet count and enumerate the causes of alteration of platelet count.	K	KH	Y	Demonstration session	Written /Viva voce			
Topic: Nerve and Muscle Physiology			**Number of competencies: (18)**				**Number of procedures for certification: NIL**		
Number	**COMPETENCY The student should be able to**	**Domain K/S/A/C**	**Level K/KH/ SH/P**	**Core (Y/N)**	**Teaching-Learning Methods**	**Assessment Methods**	**Number required to certify P**	**Vertical Integration**	**Horizontal Integration**
PY3.1.	**Describe the structure and functions of a neuron and neuroglia.Discuss Nerve Growth Factor & other growth factors/cytokines**	K	KH	Y	Lecture	Written/Viva voce			**ANATOMY**
PY3.1.1	Describe the functions of various parts of a neurons.	K	KH	Y	Lecture	Written/Viva voce			
PY3.1.2	Describe the neuroglia cells, their nomenclature based on the anatomical location . Explain the role of neuroglial cell during embryonal and adult stage.	K	KH	Y	Lecture	Written/Viva voce			
PY3.1.3	define nerve Growth Factor, Explain the role of nerve other growth factors/cytokines in normal and diseased condition	K	KH	Y	Lecture	Written/Viva voce			

PY3.2	**Describe the types, functions & properties of nerve fibers**	K	KH	Y	Lecture	Written/Viva voce			
PY3.2.1	Describe the types of nerve (based on the myelination)	K	KH	Y	Lecture	Written/Viva voce			
PY3.2.2	Describe the effect of excitation on the RMP of a neuron.	K	KH	Y	Lecture	Written/Viva voce			
PY3.2.3	Describe the genesis of action potential (electrical and ionic basis) and be able to explain the basist of refractriness of nerve.	K	KH	Y	Lecture	Written/Viva voce			
PY3.2.4	Explain the term "All-or-None" Law	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY3.2.5	describe the mechanism of conduction of impulse across the axon and factors affecting it	K	KH	Y	Lecture	Written/Viva voce			
PY3.2.6	Describe the types of nerve (based on speed of conduction)	K	KH	Y	Lecture	Written/Viva voce			
PY3.2.7	Define "mixed nerves" explain their properties (excitability and AP - Compound Action Potential)	K	KH	Y	Lecture	Written/Viva voce			
PY3.2.8	Enumerate the relative susceptibility of mammalian A, B, and C nerve fibers to conduction block produced by various agents.	K	KH	Y	Lecture	Written/Viva voce			
PY3.3	**Describe the degeneration and regeneration in peripheral nerves**	K	KH	Y	Lecture	Written/Viva voce		**General Medicine**	
PY3.3.1	Describe the nervous tissue response to injury (Degeneration & Regeneration)	K	KH	Y	Lecture	Written/Viva voce			
PY3.3.2	Explain the term Denervation hypersensitivity or supersensitivity and physiological basis.	K	KH	Y	Lecture	Written/Viva voce			
PY3.4	**Describe the structure of neuro-muscular junction and transmission of impulses**	K	KH	Y	Lecture	Written/Viva voce		**Anaesthesiology**	
PY3.4.1	Define neuromuscular junction and enumerate its components and morphological details.	K	KH	Y	Lecture	Written/Viva voce			
PY3.4.2	Describe the events occurring during transmission of impulses from the motor nerve to the muscle.	K	KH	Y	Lecture	Written/Viva voce			
PY3.4.3	Describe the disorder associated with neuro-muscular junction (myasthenia gravis and Lambert—Eaton myasthenic syndrome,)	K	KH	Y	Lecture	Written/Viva voce			
PY3.5	**Discuss the action of neuro-muscular blocking agents**	K	KH	Y	Lecture/SGD	Written/Viva voce		**Anaesthesiology, Pharmocology**	
PY3.5.1	Discuss the competitive and non competive inhibition	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY3.5.2	Describe the drugs acting on neuro-muscular junction, their mechanism of action and clinical relevance	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY3.6	**Describe the pathophysiology of Myasthenia gravis**	K	KH	Y	Lecture	Written/Viva voce		**Pathology**	
PY3.6.1	Discuss the clinical features of Myasthenia gravis	K	KH	Y	Lecture	Written/Viva voce			
PY3.6.2	Discuss the management of Myasthenia gravis and rationale behind pharmacological treatment/surgical management	K	KH	Y	Lecture	Written/Viva voce			
PY3.7	**Describe the different types of muscle fibres and their structure**	K	KH	Y	Lecture	Written/Viva voce			Human anatomy

PY3.7.1	Enumerate the three types of muscle (skeletal, cardiac, and smooth)	K	KH	Y	Lecture	Written/Viva voce			
PY3.7.2	Enumerate the morphologial differences beween them	K	KH	Y	Lecture	Written/Viva voce			
PY3.8	**Describe action potential and its properties in different muscle types (skeletal & smooth)**	K	KH	Y	Lecture	Written/Viva voce			
PY3.8.1	Describe the electrical properties of of skeletal & smooth muscle	K	KH	Y	Lecture	Written/Viva voce			
PY3.8.2	Describe the different phases of skeletal muscle action potential and its ionic basis	K	KH	Y	Lecture	Written/Viva voce			
PY3.8.3	Describe the resting membrane potential and action potential of visceral muscle and various agents/drugs affecting it. action potential and its ionic basis	K	KH	Y	Lecture	Written/Viva voce			
PY3.9	**Describe the molecular basis of muscle contraction in skeletal and in smooth muscles**	K	KH	Y	Lecture	Written/Viva voce			
PY3.9.1	Enumerate the various muscle protein present in skeletal and smooth muscles	K	KH	Y	Lecture	Written/Viva voce			
PY3.9.2	Skeletal muscle contraction	K	KH	Y	Lecture	Written/Viva voce			
PY3.9.3	Describe the mechanism invoved in the release of calcium from the SER and involved receptor	K	KH	Y	Lecture	Written/Viva voce			
PY3.9.4	Explain the molecular changes in the various contractile proteins	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY3.9.5	Explain the formation of cross bridges	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY3.10	**Describe the mode of muscle contraction (isometric and isotonic)**	K	KH	Y	Lecture	Written/Viva voce			
PY3.10.1	Describe the role of series and parallel elastic component of the muscle fibre.	K	KH	Y	Lecture	Written/Viva voce			
PY3.10.2	Describe the work done during isotonic and isometric muscle contraction.	K	KH	Y	Lecture	Written/Viva voce			
PY3.11	**Explain energy source and muscle metabolism**	K	KH	Y	Lecture	Written/Viva voce			**Biochemistry**
PY3.11.1	Enumerate the various sources during muscle contraction	K	KH	Y	Lecture	Written/Viva voce			
PY3.11.2	Discuss oxygen debt	K	KH	Y	Lecture	Written/Viva voce			
PY3.11.3	Discuss their role during aerobic and anarobic metabolic state.	K	KH	Y	Lecture	Written/Viva voce			
PY3.11.4	Explain the heat generating mechanism and define resting heat, initial heat (activation and shortening heat,) & recovery heat	K	KH	Y	Lecture	Written/Viva voce			
PY3.12	**Explain the gradation of muscular activity**	K	KH	Y	Lecture	Written/Viva voce		**General medicine**	
PY3.12.1	Discuss the term motor unit	K	KH	Y	Lecture	Written/Viva voce			
PY3.12.2	Discuss the recruitment of motor unit and its significance	K	KH	Y	Lecture	Written/Viva voce			
PY3.13	**Describe muscular dystrophy: myopathies**	K	KH	Y	Lecture	Written/Viva voce		**General medicine**	

PY3.13.1	Define the term Mucle dystrophy	K	KH	Y	Lecture	Written/Viva voce			
PY3.13.2	Discuss Duchenne's muscular dystrophy & Becker's muscular dystrophy	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY3.14	**Perform Ergography**	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.14.1	Describe the significance of performing Mosso's ergography experiment.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.14.2	Calculate the work done by muscle.	K	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.14.3	Explain the physiological basis of fatigue.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.14.4	Perform ergography following venous and arterial occlusion	S	P	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.14.5	Discuss the work done affected following venous and arterial occlusion	K	KH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.15	**Demonstrate effect of mild, moderate and severe exercise and record changes in cardiorespiratory parameters**	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.15.1	Define mild,moderate and severe exercise.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.15.2	Record the cardiovascular changes (pulse,Blood pressure-systolic,diastolic,pulse pressure and Mean blood pressure) during mild, moderate and severe exercise.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.15.3	Intrept the changes observed in cardiovascular parameters.	K	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.15.4	Record the respiratory parameters (rate and depth) during mild, moderate and severe exercise.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.15.5	Intrept the changes observed in respiratory parameters.	K	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.16	**Demonstrate Harvard Step test and describe the impact on induced physiologic parameters in a simulated environment**	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.16.1	Describe the significance of performing Harvard Step test.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.16.2	Define MET.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.16.3	Perform the test and record the duration of exercise and pulse rate.	S	P	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.16.4	Interpret the score.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
PY3.17	**Describe Strength-duration curve**	K	KH	Y	Lecture, Small group,discussion	Written/Viva voce			
PY3.17.1	Define Strength-duration curve	K	KH	Y	Lecture, Small group,discussion	Written/Viva voce			
PY3.17.2	Define chronaxie and rheobase.	K	KH	Y	Lecture, Small group,discussion	Written/Viva voce			

PY3.17.3	Describe the significance of performing experiment.	K	KH	Y	Lecture, Small group,discussion	Written/Viva voce			
PY3.17.4	Enumerate the factors on which chronaxie and rheobase depends.	K	KH	Y	Lecture, Small group,discussion	Written/Viva voce			
PY3.17.5	Discuss the advantages and disadvantages of Strength-duration curve.	K	KH	Y	Lecture, Small group,discussion	Written/Viva voce			
PY3.18	**Observe with Computer assisted learning (i) amphibian nerve -muscle experiments (ii) amphibian cardiac experiments**	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.1	Define simple muscle twitch.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.2	Draw and label different phases of simple muscle twitch curve.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.3	Define Stimulus, Sub-threshold stimulus & Supra-maximal stimulus.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.4	Describe the mechanism of the graded response to increasing strength of stimulus recorded in the experiment.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.5	Define summation and beneficial effect.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.6	Explain the mechanism of summation of stimuli and beneficial effect.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			

PY3.18.7	Discuss the importance of using maximal/ supramaximal stimulus in the experiment	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.8	Define staircase phenomenon.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.9	Define clonus.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.10	Define complete tetanus & in-complete tetanus	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.11	Differentiate rigor mortis and contracture.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.12	Describe and explain the effect of temperature on duration of latent period, contraction phase and relaxation phase and height of contraction.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.13	Describe the changes that occur in simple muscle twitchas fatigue sets in.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.14	Mention the causes of fatigue.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.15	Define contraction remainder.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			

PY3.18.16	Define conduction velocity.	K	KH	Y	Demonstration/ Computer assisted learning methods	Practical/OSPE/Viva voce			
PY3.18.17	Enumerate the factors affecting conduction velocity	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.18	Name few disease conditions in which conduction velocity is affected.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.19	Draw normal cardiogram and label its component waves	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.20	Discuss the effects of warm and cold ringer solution ion activity of the frog's heart.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.21	Discuss the properties of cardiac muscle : "Rhythmicity", "All or none law", "Benefic	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.22	Describe the mechanism of staircase effect or the treppe.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.23	Discuss the physiological basis of the compensatory pause.	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			
PY3.18.24	What are hazards of extrasystole?	K	KH	Y	Demonstration/ Computer assisted learning methods	Written/Viva voce			

Topic: Gastro-intestinal Physiology		Number of competencies: (10)					Number of procedures that require		
Number	**COMPETENCY The student should be able to**	**Domain K/S/A/C**	**Level K/KH/ SH/P**	**Core (Y/N)**	**Teaching-Learning Methods**	**Assessment Methods**	**Number required to certify P**	**Vertical Integration**	**Horizontal Integration**
PY4.1	**Describe the structure and functions of digestive system**	K	KH	Y	Lecture	Written/Viva voce			**Human anatomy**
PY4.1.1	Enumerate the functions of GI tract and correlate with functional anatomy	K	KH	Y	Lecture	Written/Viva voce			
PY4.1.2	Name layers of GI tract and their functional importance	K	KH	Y	Lecture	Written/Viva voce			
PY4.2	**Describe the composition, mechanism of secretion, functions, and regulation of saliva, gastric, pancreatic, intestinal juices and bile secretion**	K	KH	Y	Lecture	Written/Viva voce			Biochemistry
PY 4.2.1	Name salivary glands and list composition and functions of salivary secretion	K	KH	Y	Lecture	Written/Viva voce			
PY4.2.2	Explain mechanism of salivary secretion with phases and its regulation by neural mechanisms	K	KH	Y	Lecture	Written/Viva voce			
PY4.2.3	Differentiate between activated and resting parietal cell	K	KH	Y	Lecture	Written/Viva voce			
PY4.2.4	List the composition and functions of gastric secretion	K	KH	Y	Lecture	Written/Viva voce			
PY4.2.5	Describe the mechanism and regulation of gastric secretion in 3 phases	K	KH	Y	Lecture	Written/Viva voce			
PY4.2.6	Enumerate the composition and functions of pancreatic secretion	K	KH	Y	Lecture	Written/Viva voce			
PY4.2.7	Explain mechanism and regulation of pancreatic secretion	K	KH	Y	Lecture	Written/Viva voce			
PY4.2.8	List composition and functions of bile	K	KH	Y	Lecture	Written/Viva voce			
PY4.2.9	Differentiate between hepatic and gall bladder bile	K	KH	Y	Lecture	Written/Viva voce			
PY4.2.10	Explain mechanism of enterohepatic circulation and its significance	K	KH	Y	Lecture	Written/Viva voce			
PY4.2.11	Discuss mechanism and regulation of bile secretion	K	KH	Y	Lecture	Written/Viva voce			
PY4.2.12	Explain composition and functions of intestinal secretion	K	KH	Y	Lecture	Written/Viva voce			
PY4.2.13	Describe mechanism and regulation of intestinal secretion	K	KH	Y	Lecture	Written/Viva voce			
PY4.3	**Describe GIT movements, regulation and functions. Describe defecation reflex. Explain role of dietary fibre.**	K	KH	Y	Lecture	Written/Viva voce			
PY 4.3.1	Explain electrical activity of gastrointestinal smooth muscle	K	KH	Y	Lecture	Written/Viva voce			
PY4.3.2	List the functions of mastication and explain its mechanism	K	KH	Y	Lecture	Written/Viva voce			
PY4.3.3	Describe deglutition reflex with its 3 phases	K	KH	Y	Lecture	Written/Viva voce			
PY4.3.4	List types of gastric motility and explain mechanism , regulation of gastric emptying	K	KH	Y	Lecture	Written/Viva voce			
PY 4.3.5	Explain mechanisms of different patterns of intestinal motility and their functions	K	KH	Y	Lecture	Written/Viva voce			
PY4.3.6	Explain Migratory Motor Complex (MMC) and its significance	K	KH	Y	Lecture	Written/Viva voce			

PY4.3.7	Enumerate types of movements of large intestine and define gastrocolic reflex	K	KH	Y	Lecture	Written/Viva voce			
PY4.3.8	Describe the mechanism and pathway of defecation reflex	K	KH	Y	Lecture	Written/Viva voce			
PY 4.3.9	Explain physiological role of dietary fibres and its benefits in disease prevention	K	KH	Y	Lecture	Written/Viva voce			
PY4.4	**Describe the physiology of digestion and absorption of nutrients**	K	KH	Y	Lecture	Written/Viva voce			Biochemistry
PY4.4.1	Explain digestion and absorption of carbohydrates	K	KH	Y	Lecture	Written/Viva voce			
PY4.4.2	Discuss Lactose intolerance	K	KH	Y	Lecture	Written/Viva voce			
PY4.4.3	Explain digestion and absorption of proteins	K	KH	Y	Lecture	Written/Viva voce			
PY4.4.4	Explain digestion and absorption of lipids	K	KH	Y	Lecture	Written/Viva voce			
PY4.4.5	Define Steatorrhea	K	KH	Y	Lecture	Written/Viva voce			
PY4.4.6	Describe absorption of vitamins and minerals	K	KH	Y	Lecture	Written/Viva voce			
PY4.5	**Describe the source of GIT hormones, their regulation and functions**	K	KH	Y	Lecture	Written/Viva voce			
PY4.5.1	Classify GIT hormones	K	KH	Y	Lecture	Written/Viva voce			
PY4.5.2	Explain source, regulation and functions of GIT hormones	K	KH	Y	Lecture	Written/Viva voce			
PY4.5.3	Describe role of GIT hormones in the regulation of gastrointestinal functions	K	KH	Y	Lecture	Written/Viva voce			
PY4.6	**Describe the Gut-Brain Axis**	K	KH	Y	Lecture	Written/Viva voce			
PY4.6.1	Describe innervation of GIT (intrinsic and extrinsic)	K	KH	Y	Lecture	Written/Viva voce			
PY4.6.2	List types of enteric nervous system with role of both intramural plexus in gastrointestinal tract	K	KH	Y	Lecture	Written/Viva voce			
PY4.7	**Describe & discuss the structure and functions of liver and gall bladder**	K	KH	Y	Lecture	Written/Viva voce			**Biochemistry**
PY4.7.1	List the functions of Liver	K	KH	Y	Lecture	Written/Viva voce			
PY4.7.2	Describe the details of bilirubin metabolism	K	KH	Y	Lecture	Written/Viva voce			
PY4.7.3	Explain the pathophysiology of jaundice	K	KH	Y	Lecture	Written/Viva voce			
PY4.7.4	Differentiate between different types of jaundice	K	KH	Y	Lecture	Written/Viva voce			
PY4.7.5	List the functions of gall bladder	K	KH	Y	Lecture	Written/Viva voce			
PY4.7.6	Discuss types, causes, features of gallstones	K	KH	Y	Lecture	Written/Viva voce			
PY4.8	**Describe & discuss gastric function tests, pancreatic exocrine function tests & liver function tests**	K	KH	Y	Lecture	Written/Viva voce			**Biochemistry**
PY4.8.1	Explain gastric function tests .	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY4.8.2	Explain pancreatic exocrine funcion tests and their normal values	K	KH	Y	Lecture/SGD	Written/Viva voce			

PY4.8.3	Explain Liver function tests and their normal values	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY4.9	**Discuss the physiology aspects of: peptic ulcer, gastro- oesophageal reflux disease, vomiting, diarrhoea, constipation, Adynamic ileus, Hirschsprung's disease**	K	KH	Y	Lecture/SGD	Written/Viva voce		General Medicine	**Biochemistry**
PY4.9.1	Explain mucosal defence barrier with its significance	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY4.9.2	Discuss the pathophysiology of peptic ulcer and its management	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY4.9.3	Explain the functions of lower and upper oesophageal sphincters	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY4.9.4	Discuss the basis of Gastroesophageal reflux disease	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY4.9.5	Enumerate different stimuli inducing vomiting and different vomiting centres	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY4.9.6	Describe the vomiting reflex	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY4.9.7	Explain the causes and features of Adynamic ileus	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY4.9.8	Explain the physiological basis of diarrhoea and constipation	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY4.9.9	Describe the etiology, features of Hirschsprung disease	K	KH	Y	Lecture	Written/Viva voce			
PY4.10	**Demonstrate the correct clinical examination of the abdomen in a normal volunteer or simulated environment**	S	SH	Y	DOAP session	Practical/OSPE/Viva voce			
PY4.10.1	Discuss the clinical perspective of examination of the abdomen in a normal volunteer.	S	SH	Y	DOAP session	Practical/OSPE/Viva voce			
Topic: Cardiovascular Physiology (CVS)		**Number of competencies: (16)**					**Number of procedures for certification: (03)**		
Number	**COMPETENCY The student should be able to**	**Domain K/S/A/C**	**Level K/KH/ SH/P**	**Core (Y/N)**	**Teaching-Learning Methods**	**Assessment Methods**	**Number required to certify P**	**Vertical Integration**	**Horizontal Integration**
PY5.1	**Describe the functional anatomy of heart including chambers,sounds; and Pacemaker tissue and conducting system.**	K	KH	Y	Lecture	Written/Viva voce			**Anatomy**
PY5.1.1	Describe the morphology of heart including its chambers and valves with emphesis on gap junction and its importance..	K	KH	Y	Lecture	Written/Viva voce			
PY5.1.2	Expalin the genesis of normal heart sounds.	K	KH	Y	Lecture	Written/Viva voce			
PY5.1.3	Describe the structure of cardiac muscle including its functions.	K	KH	Y	Lecture	Written/Viva voce			
PY5.1.4	Describe the structure of pacemaker tissue and conducting system of heart..	K	KH	Y	Lecture	Written/Viva voce			
PY5.2	**Describe the properties of cardiac muscle including its morphology,electrical, mechanical and metabolic functions**	K	KH	Y	Lecture	Written/Viva voce			
PY5.2.2	Enumerate the properties of cardiac muscle	K	KH	Y	Lecture	Written/Viva voce			
PY5.2.3	Describe the morphological properties of cardiac muscle	K	KH	Y	Lecture	Written/Viva voce			
PY5.2.4	Describe the electrical properties of cardiac muscle with special emphasis on cardiac action potentials.	K	KH	Y	Lecture	Written/Viva voce			
PY5.2.5	Describe the mechanical properties of cardiac muscle	K	KH	Y	Lecture	Written/Viva voce			
PY5.2.6	Describe the metabolic properties of cardiac muscle	K	KH	Y	Lecture	Written/Viva voce			

PY5.3	**Discuss the events occurring during the cardiac cycle**	K	KH	Y	Lecture	Written/Viva voce			
PY5.3.1	Draw a well labelled diagram showing various phases and events occurring during the cardiac cycle	K	KH	Y	Lecture	Written/Viva voce			
PY5.3.2	Describe the various phases of cardiac cycle	K	KH	Y	Lecture	Written/Viva voce			
PY5.3.3	Expalin with the help of diagram of pressure-volume changes occur during cardiac cycle	K	KH	Y	Lecture	Written/Viva voce			
PY5.3.3.4	Describe the electrical events occur during cardiac cycle.	K	KH	Y	Lecture	Written/Viva voce			
PY5.3.3.5	Expalin the genesis of heart sounds occur during cardiac cycle	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY5.4	**Describe generation, conduction of cardiac impulse**	K	KH	Y	Lecture	Written/Viva voce			
PY5.4.1	Describe anatomical consideration of pacemaker tissue and conducting system of heart.	K	KH	Y	Lecture	Written/Viva voce			
PY5.4.2	Discuss the histological features of conducting system with special consideration on gap junctions.	K	KH	Y	Lecture	Written/Viva voce			
PY5.4.3	Enumerate the sequence of pathway of electrical excitation of heart.	K	KH	Y	Lecture	Written/Viva voce			
PY5.4.4	Describe the functional significance of A-V nodal delay.	K	KH	Y	Lecture	Written/Viva voce			
PY5.4.5	Explain the role of SA node as primary pacemaker of heart..	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY5.4.6	Enumerate the effect of autonomic nervous activity on conduction of cardiac impulse.	K	KH	Y	Lecture	Written/Viva voce			
PY5.4.7	Describe the consequence of aberrant excitation due to abnormal pacemaker/ectopic in heart.	K	KH	Y	Lecture	Written/Viva voce			
PY5.5	**Describe the physiology of electrocardiogram (E.C.G), its applications and the cardiac axis**	K	KH	Y	Lecture	Written/Viva voce		General medicine	
PY5.5.1	Describe the electrical basis of electrocardiogram (ECG)	K	KH	Y	Lecture	Written/Viva voce			
PY5.5.2	Discuss the genesis of resting membrane potential and cardiac action potential..	K	KH	Y	Lecture	Written/Viva voce			
PY5.5.3	Compare the relation between ventricular action potential and the waves of electrocardiogram (E.C.G),	K	KH	Y	Lecture	Written/Viva voce			
PY5.5.4	Draw and label various segments and intervals in normal electrocardiogram (E.C.G).	K	KH	Y	Lecture	Written/Viva voce			
PY5.5.4.5	Discuss the clinical applications of ECG.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY5.5.4.6	Describe the principles of vectorial analysis of ECG.	K	KH	Y	Lecture	Written/Viva voce			
PY5.6	**Describe abnormal ECG, arrythmias, heart block and myocardial infarction.**	K	KH	Y	Lecture	Written/Viva voce		General medicine	Huamn anatomy
PY5.6.1	Describe changes in ECG which occur due to dsiturbance in conducting system of heart including common arrhythmias.	K	KH	Y	Lecture	Written/Viva voce			
PY5.6.2	Describe changes in ECG which occur due to myocardial ischemia and infarction.	K	KH	Y	Lecture	Written/Viva voce			
PY5.6.3	Describe changes in ECG which occur due to heart block.	K	KH	Y	Lecture	Written/Viva voce			

PY5.7	**Describe and discuss haemodynamics of circulatory system**	K	KH	Y	Lecture	Written/Viva voce			
PY5.7.1	Describe the functional organization and structure of circulatory system.	K	KH	Y	Lecture	Written/Viva voce			
PY5.7.2	Discuss the principles governing the blood flow.	K	KH	Y	Lecture	Written/Viva voce			
PY5.7.3	Describe the relation between flow,pressure and resistance given by Poiseuille law.	K	KH	Y	Lecture	Written/Viva voce			
PY5.7.4	Differentiate between laminar and turbulant flow and expalin the concept of Reynold's Number..	K	KH	Y	Lecture	Written/Viva voce			
PY5.7.5	Define critical closing pressure.	K	KH	Y	Lecture	Written/Viva voce			
PY5.7.6	Define compliance of blood vessels.	K	KH	Y	Lecture	Written/Viva voce			
PY5.7.7	Define critical closing pressure.	K	KH	Y	Lecture	Written/Viva voce			
PY5.8	**Describe and discuss local and systemic cardiovascular regulatory mechanisms.**	K	KH	Y	Lecture	Written/Viva voce			
PY5.8.1	Explain the significance of cadiovasular regulatory system..	K	KH	Y	Lecture	Written/Viva voce			
PY5.8.2	Describe the various cadiovasular regulatory mechanisms.	K	KH	Y	Lecture	Written/Viva voce			
PY5.8.3	Explain the neural control mechansim of cadiovasular regulatory system..	K	KH	Y	Lecture	Written/Viva voce			
PY5.9	**Describe the factors affecting heart rate, regulation of cardiac output & blood pressure**	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.1	Define heart rate and factors affecting it.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.2	Expalin the mechanism involved in regualtion of heart rate.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.3	Define cardiac output and state the relationship between cardiac output, the heart rate, and stroke volume	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.4	Describe the determinants of cardiac output and venous return.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.5	Describe the different methods of measurement of cardiac output.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.6	Describe the regulation of cardiac output.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.7	Define Frank & Starling Law of heart and discuss its clinical significance.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.8	Enumerate the physiological causes affecting cardiac output.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.9	Define the following terms: blood pressure ,systolic blood pressure,diastolic blood pressure,pulse pressure and Mean arterial blood pressure.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.10	Enumerate the determinants of arterial blood pressure..	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.11	Draw the arterial pulse pressure curve and label its components.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.12	Describe the changes that occur as pressure pulse wave travels towards smaller vessels.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.13	Describe the vasomotor centre.	K	KH	Y	Lecture	Written/Viva voce			

PY5.9.14	Describe the physiological anatomy of barorecepters and their innervation.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.15	Describe the role of barorecepters in short term regulation of arterial blood pressure..	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.16	Describe barorecepters adaptation.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.17	Describe the mechanisms involved in Bainbridge reflex.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.18	Describe the mechanisms involved in Cushing's CNS ischemic response..	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.19	Describe the physiological anatomy of chemorecepters and the mechanism involved in chemoreceptor reflex.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.20	Discuss the various mechanisms involved in intermediate regulation of arterial blood pressure.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.21	Describe the role of barorecepters in postural changes.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.22	Expalin the vasovagal syncope.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.23	Describe the role of barorecepters in postural changes.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.24	Describe the role of kidney in long term regualtion of arterial blood pressure	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.25	Describe the components of renin -angiotensin-aldosterone system (RAAS).	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.26	Explain the role of renin -angiotensin-aldosterone system (RAAS) in regulation of arterial blood pressure.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY5.9.27	Describe the influence of changes in body fluid volume on arterial pressure and the steps involved in this process.	K	KH	Y	Lecture	Written/Viva voce			
PY5.9.28	Explain the role of renin -angiotensin-aldosterone system (RAAS) in maintaining normal arterial blood pressure despite largevariation in salt intake.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY5.10	**Describe & discuss regional circulation including microcirculation,lymphatic circulation, coronary, cerebral, capillary, skin, foetal,pulmonary and splanchnic circulation**	K	KH	Y	Lecture	Written/Viva voce		General medicine	
PY5.10.1	Describe the structure of microcirculation and capillary system.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.2	Mention the functions of microcirculation..	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.3	Describe how the blood flow through the microcirculation is controlled.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.4	List Starling's forces and their role in capillary fluid exchange.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.5	List the factors that affect exchange.of nutrients in the capillaries.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.6	Describe the formation of lymph.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.7	Enumerate the factor that influence lymphatic flow.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.8	Describe the functions of lymphatic system.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.9	Describe the regional circulation of the major organs in the body as a percentage of cardiac output and per unit tissue mass.	K	KH	Y	Lecture	Written/Viva voce			

PY5.10.10	Define the term autoregulation and describe the mechanisms involved.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.11	Describe the mechanism invoved in acute control of local blood flow.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.12	Describe the mechanism invoved in log-term control of local blood flow.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.13	Describe how metabolic control of local blood flow takes place.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.14	Enumerate the various vasoconstricor substances and expalin the mechanism of their actions.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.15	Enumerate the various vasodialtor substances and expalin the mechanism of their actions.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.16	Describe the physiological anatomy of coronary circulation.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.17	List the determinants of coronary blood flow.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.18	Explain the regulation of coronary blood flow.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.19	Describe the basis and consequences of ischemic heart disease.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.20	Describe the physiological anatomy of cerebral circulation.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.21	Describe the measurement of cerebral blood flow.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.22	List the factors that affect cerebral blood flow.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.23	Explain the regulation of cerebral blood flow.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.24	Define stroke and describe its features.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.25	Describe the anatomy of splanchnic circulation.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.26	Describe the countercurrent mechanism of blood flow in villi.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.27	Enumerate the salient features of splanchnic circulation.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.28	Describe the anatomical organization of fetal circulation.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.29	Describe the changes in fetal circulation at birth.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.30	Describe the circulatory adjustments that occur in congenital heart defect with left to right shunt	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.31	Describe the circulatory adjustments that occur in congenital heart defect with right to left shunt	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.32	Enumerate the salient features of pulmonary circulation.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.33	List the factors that regulate pulmonary circulation.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.34	Enumerate the characteristic features of cutaneous circulation.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.35	Explain the regulation of cutaneous blood flow.	K	KH	Y	Lecture	Written/Viva voce			
PY5.10.36	Enumerate the various cutaneous vascular responses and expalin their mechanism.	K	KH	Y	Lecture	Written/Viva voce			

PY5.10.37	Define triple response in injury.	K	KH	Y	Lecture	Written/Viva voce			
PY5.11	**Describe the patho-physiology of shock, syncope and heart failure**	K	KH	Y	Lecture	Written/Viva voce			
PY5.11.1	Describe the circulatory dynamics in heart failure.	K	KH	Y	Lecture	Written/Viva voce			
PY5.11.2	Distinguish between left and right heart failure.	K	KH	Y	Lecture	Written/Viva voce			
PY5.11.3	Distinguish between compensated and decompensated heart failure.	K	KH	Y	Lecture	Written/Viva voce			
PY5.11.4	Describe the principles of treatment of heart failure.	K	KH	Y	Lecture	Written/Viva voce			
PY5.11.5	Explain the concept of 'Cardiac reserve'.	K	KH	Y	Lecture	Written/Viva voce			
PY5.11.6	Define the term Syncope and enumerate the various causes.	K	KH	Y	Lecture	Written/Viva voce			
PY5.11.7	Describe the circulatory shock.	K	KH	Y	Lecture	Written/Viva voce			
PY5.11.8	Describe the physiological pathways involved in circulatory shock.	K	KH	Y	Lecture	Written/Viva voce			
PY5.11.9	Describe the stages of shock.	K	KH	Y	Lecture	Written/Viva voce			
PY5.11.10	Enumerate the causes of shock and briefly expalin them.	K	KH	Y	Lecture	Written/Viva voce			
PY5.11.11	Describe the principles of treatment of shock.	K	KH	Y	Lecture	Written/Viva voce			
PY5.11.12	Distinguish between distributive and hypovolemic shock.	K	KH	Y	Lecture	Written/Viva voce			
PY5.12	**Record blood pressure & pulse at rest and in different grades of exercise and postures in a volunteer or simulated environment.**	S	SH	Y	DOAP sessions	Practical/OSPE/Viva	1 each x 3		
PY5.12.1	Define the following terms: blood pressure ,systolic blood pressure,diastolic blood pressure,pulse pressure and Mean arterial blood pressure.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.12.2	Define pulse.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.12.3	Record radial pulse.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.12.4	Enumerate the factors affecting blood pressure.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.12.5	Record blood pressure by palpatory method.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.12.6	Record blood pressure by auscultatory method.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.12.7	List the precautions taken while recording blood pressure.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.12.8	Expalin why BP recorded by the palpatory method tends to 5-10 mm lower than re	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.12.9	Define hypertension.What are the complications of hypertension?	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.12.10	Record blood pressure and pulse rate on change in posture (lying to standing)	K	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.12.11	Explain the changes observed in systolic & diastolic BP and pulse rate on change	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			

PY5.12.12	Discuss the underlying mechanism for the change in heart rate during exercise.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.12.13	Define postural hypotension.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.13	**Record and interpret normal ECG in a volunteer or simulated environment.**	S	SH	Y	DOAP sessions	Practical/OSPE/Viva		General medicine	
PY5.13.1	Discuss the electrophysiology of heart in relation to ECG.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.13.2	Differentiate between unipolar and bipolar recording.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.13.3	Demonstrate the placement of ECG electrodes.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.13.4	Draw the normal ECG and identify the various waves and intervals.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.13.5	Record the ECG of the subject.	S	P	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.13.6	Interpret the recorded ECG.	S	P	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.13.7	Give the normal values of: P wave ,PR interval,QRS complex,QT interval & ST segemnt	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.13.8	Calculate heart rate and axis of the heart.	S	P	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.13.9	Describe the significance of performing experiment.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.14	**Observe cardiovascular autonomic function tests in a volunteer or simulated environment**	S	SH	N	DOAP sessions	Skill assessment/ Viva			
PY5.14.1	Enumerate the autonomic function test.	K	KH	N	DOAP sessions	Skill assessment/ Viva			
PY5.14.2	Eneumerate the parasympathetic and sympathetic function test	K	KH	N	DOAP sessions	Skill assessment/ Viva			
PY5.14.3	Interpret the test and comment on the disoder affecting autonomic function	K	KH	N	DOAP sessions	Skill assessment/ Viva			
PY5.15	**Demonstrate the correct clinical examination of the cardiovascular system in a normal volunteer or simulated environment.**	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.15.1	Discuss the clinical perspective of examination of the cardiovascular system in a normal volunteer.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.15.2	Expalin the various parameters to be examined during inspection,palption,percussion and auscultation.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.15.3	Localize the apex beat.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.15.4	Auscultates and describe the character and of heart sound.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY5.15.5	Discuss the murmurs and other abnormal heart sounds.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			

PY5.16	**Record Arterial pulse tracing using finger plethysmography in a volunteer or simulated environment.**	S	SH	N	DOAP sessions /Computer assisted learning methods	Practical/OSPE/Viva		General Medicine	
PY5.16.1	Explain the significance of meauring pulse plethysmograph.	K	KH	N	DOAP sessions /Computer assisted learning methods	Practical/OSPE/Viva			
PY5.16.2	Explain the principle of pulse plethysmography	K	KH	N	DOAP sessions /Computer assisted learning methods	Practical/OSPE/Viva			
PY5.16.3	Explain how does pulse plethysmograph sensor works.	K	KH	N	DOAP sessions /Computer assisted learning methods	Practical/OSPE/Viva			
PY6.1	**Describe the functional anatomy of respiratory tract**	K	KH	Y	Lecture	Written/Viva voce			
PY6.1.1	Describe the anatomical organization of the airways and lungs.	K	KH	Y	Lecture	Written/Viva voce			
PY6.1.2	Draw the layers of alveolus across whih diffusion of gases occurs.	K	KH	Y	Lecture	Written/Viva voce			
PY6.1.3	Define respiratory unit.	K	KH	Y	Lecture	Written/Viva voce			
PY6.1.4	Explain the physical laws applicable in respiratory physiology.	K	KH	Y	Lecture	Written/Viva voce			
PY6.1.5	Enumerate the non-respiratory functions of lungs.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2	**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**	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.1	Enumerate the muscles of inspiration and expiration.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.2	Explain the role of muscles of inspiration and expiration.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.3	Describe the pressure-flow-volume changes occur during the repiratory cycle.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.4	Expalin with the help of diagram compliance of lungs.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.5	Enumerate factors affecting the compliance of lungs.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.6	Explain the regional variation of compliance of lungs and effect of gravity.	K	KH	Y	Lecture	Written/Viva voce			

PY6.2.7	What is the difference between static and dynamic compliance of lungs.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.8	Define the lung surfactant and from where it is secreted.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.9	Discuss the functions of surfactant.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.10	Explain the pathophysiology of Respiratory distress syndrome.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.11	Explain the reason of airways resistance in smaller airways	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.12	Define the terms repiratory minute volume and alveolar ventiltion.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.13	Define the term dead space.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.14	Describe the method of determing anatomical and physiological dead space.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.15	Define different lung volume and capacities.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.16	Draw a diagrm showing different lung volume and capacities.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.17	Describe the methods used to determine functional residual volume.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.18	List the determinants of airways resistance.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.19	Define peak expiratory flow rate and indiacte its significance.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.20	Define maximum voluntary ventilation (MVV) and breathing reserve.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.21	Describe the relation of alveolar ventilation to partial pressure of oxygen and carbon dioxide in blood.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.22	Describe the methods used to determine functional residual volume.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.23	Enumerate the causes of hyperventilation.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.24	Enumerate the causes of hypoventilation.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.25	Define ventilation-perfusion ratio.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.26	Expalin the regional variation ventilation-perfusion ratio.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.27	Describe with the help of diagram the structure of respiratory membrane.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.28	Expalin the terms diffusion and perfusion-limited with examples.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.29	Define the diffuison capacity of lungs.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.30	Enumerate the factors affecting diffuison capacity of lungs.	K	KH	Y	Lecture	Written/Viva voce			
PY6.2.31	Describe the methods used to determine diffusion capacity.	K	KH	Y	Lecture	Written/Viva voce			
PY6.3	**Describe and discuss the transport of respiratory gases: Oxygen and Carbon dioxide**	K	KH	Y	Lecture	Written/Viva voce			
PY6.3.1	Compare the composition of alveolar air,inspired air and expired air.	K	KH	Y	Lecture	Written/Viva voce			

PY6.3.2	List the different forms in which oxygen is transported in blood.	K	KH	Y	Lecture	Written/Viva voce			
PY6.3.3	Compare the composition of alveolar air,inspired air and expired air.	K	KH	Y	Lecture	Written/Viva voce			
PY6.3.4	Expalin with the help of diagram oxgen-hemoglobin dissociation curve.	K	KH	Y	Lecture	Written/Viva voce			
PY6.3.5	Draw a diagram showing shift in oxgen-hemoglobin dissociation curve.	K	KH	Y	Lecture	Written/Viva voce			
PY6.3.6	Enumerate the factors causing shift in oxygen- hemoglobin dissocaition curve.	K	KH	Y	Lecture	Written/Viva voce			
PY6.3.7	What is Bohr's effect.	K	KH	Y	Lecture	Written/Viva voce			
PY6.3.8	List the different forms in which carbon diooxide is transported in blood.	K	KH	Y	Lecture	Written/Viva voce			
PY6.3.9	Expalin with the help of diagram transport of carbondioxide in blood.	K	KH	Y	Lecture	Written/Viva voce			
PY6.3.10	Expalin with the chloride shift.	K	KH	Y	Lecture	Written/Viva voce			
PY6.3.11	Expalin with the Haldane effect.	K	KH	Y	Lecture	Written/Viva voce			
PY6.3.12	Compare the oxygem-hemoglobin and oxygen-myoglobin disssociation curve.	K	KH	Y	Lecture	Written/Viva voce			
PY6.3.13	Define hypoxia.	K	KH	Y	Lecture	Written/Viva voce			
PY6.3.14	Describe different types of hypoxia with suitable examples.	K	KH	Y	Lecture	Written/Viva voce			
PY6.4	**Describe and discuss the physiology of high altitude and deep sea diving.**	K	KH	Y	Lecture	Written/Viva voce			
PY6.4.1	List the changes that occur on exposure to high altitude.	K	KH	Y	Lecture	Written/Viva voce			
PY6.4.2	Describe the process of acclimatization.	K	KH	Y	Lecture	Written/Viva voce			
PY6.4.3	Expalin the basis of acute and chronic mountain sickness.	K	KH	Y	Lecture	Written/Viva voce			
PY6.4.4	Enumerate the physiological compensatory responses occur with high altitude hypoxia.	K	KH	Y	Lecture	Written/Viva voce			
PY6.4.5	Describe the changes that occur with deep sea diving.	K	KH	Y	Lecture	Written/Viva voce			
PY6.4.6	Describe nitrogen narcosis amd decompression sickness.	K	KH	Y	Lecture	Written/Viva voce			
PY6.4.7	Describe the phsiological basis of prevention and management of decompression sickness.	K	KH	Y	Lecture	Written/Viva voce			
PY6.5	**Describe and discuss the principles of artificial respiration, oxygen therapy, acclimatization and decompression sickness.**	K	KH	Y	Lecture	Written/Viva voce			
PY6.5.1	Describe the methods of artificial respiration.	K	KH	Y	Lecture	Written/Viva voce			
PY6.5.2	Describe oxygen therapy.	K	KH	Y	Lecture	Written/Viva voce			
PY6.5.3	Describe nitrogen narcosis amd decompression sickness.	K	KH	Y	Lecture	Written/Viva voce			
PY6.5.4	Describe the phsiological basis of prevention and management of decompression sickness.	K	KH	Y	Lecture	Written/Viva voce			

PY6.6	**Describe and discuss the pathophysiology of dyspnoea, hypoxia,cyanosis asphyxia; drowning, periodic breathing**	K	KH	Y	Lecture	Written/Viva voce		Respiratory Medicine	
PY6.6.1	Define dyspnoea.	K	KH	Y	Lecture	Written/Viva voce			
PY6.6.2	List the causes of dyspnoea.	K	KH	Y	Lecture	Written/Viva voce			
PY6.6.3	Define dyspnoeic index.	K	KH	Y	Lecture	Written/Viva voce			
PY6.6.4	Define the term cyanosis.	K	KH	Y	Lecture	Written/Viva voce			
PY6.6.5	Enumerate the factors causing cyanosis.	K	KH	Y	Lecture	Written/Viva voce			
PY6.6.6	Define asphyxia.	K	KH	Y	Lecture	Written/Viva voce			
PY6.6.7	Describe the pathophysiology of abnormal breathing patterns.	K	KH	Y	Lecture	Written/Viva voce			
PY6.7	**Describe and discuss lung function tests & their clinical significance.**	K	KH	Y	Lecture	Written/Viva voce			
PY6.7.1	Describe the pulmonary function tests & their clinical significance.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY6.7.2	Define different lung volume and capacities.	K	KH	Y	Lecture	Written/Viva voce			
PY6.7.3	Draw a diagrm showing different lung volume and capacities.	S	SH	Y	Lecture	Written/Viva voce			
PY6.8	**Demonstrate the correct technique to perform & interpret Spirometry**	S	SH	Y	DOAP sessions	Skill assessment/ Viva voce			
PY6.8.1	Perform the spirometry of the subject.	S	P	Y	DOAP sessions	Skill assessment/ Viva voce			
PY6.8.2	Interpret the graph and calculate various lung volume and capacities.	S	P	Y	DOAP sessions	Skill assessment/ Viva voce			
PY6.8.3	Explain the significance of performing spirometry.	K	KH	Y	DOAP sessions	Skill assessment/ Viva voce			
PY6.8.4	Comment the type of respiratory disordesr on the basis of spirometry.	K	KH	Y	DOAP sessions	Skill assessment/ Viva voce			
PY6.9	**Demonstrate the correct clinical examination of the respiratory system in a normal volunteer or simulated environment**	S	SH	Y	DOAP sessions	Skill assessment/ Viva voce	1		
PY6.9.1	Understand the importance of correct position and adequate exposure of the chest and abdomen	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY6.9.2	Discuss the clinical perspective of examination of the respiratory system in a normal volunteer.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY6.9.3	Examine the various parameters during inspection, palption, percussion and auscultation.	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY6.9.4	Understand and explain the differences between bronchial and vesicular breath sounds.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			

PY6.9.5	Understand the various types of adventitious sounds.	K	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY6.10	**Demonstrate the correct technique to perform measurement of peak expiratory flow rate in a normal volunteer or simulated environment**	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY6.10.1	Perform and record peak expiratory flow rate	S	P	Y	DOAP sessions	Practical/OSPE/Viva			
Topic:Renal Physiology				**Number of competencies: (09)**			**Number of procedures for certification:**		
Number	**COMPETENCY The student should be able to**	**Domain K/S/A/C**	**Level K/KH/ SH/P**	**Core (Y/N)**	**Teaching-Learning Methods**	**Assessment Methods**	**Number required to certify P**	**Vertical Integration**	**Horizontal Integration**
PY7.1.1	Describe the salient features of a nephron and special emphasis on morphological variation in different parts of nephron	K	KH	Y	Lecture	Written/Viva voce			
PY7.1.2	Enumerate the differences between cortical and juxtamedullary nephrons and their importance.	K	KH	Y	Lecture	Written/Viva voce			
PY7.1.3	Describe the renal circulation and its pecularities	K	KH	Y	Lecture	Written/Viva voce			
PY7.1.4	Describe the neural innervation to kidney and their effects on renal blood flow	K	KH	Y	Lecture	Written/Viva voce			
PY7.1.5	Enumerate the functions of kidney function.	K	KH	Y	Lecture	Written/Viva voce			
PY7.2	**Describe the structure and functions of juxta glomerular apparatus and role of renin-angiotensin system**	K	KH	Y	Lecture	Written/Viva voce			
PY7.2.1	Enumerate the components of juxta glomeorular apparatus and their location.	K	KH	Y	Lecture	Written/Viva voce			
PY7.2.2	Describe the role of macula densa, granular cells and mesangial cell	K	KH	Y	Lecture	Written/Viva voce			
PY7.2.3	Enumerate the factor responsible for secretion renin	K	KH	Y	Lecture	Written/Viva voce			
PY7.2.4	Enumerate the actions of ANG II and mechanism responsible for the termination of its action.	K	KH	Y	Lecture	Written/Viva voce			
PY7.2.5	Discuss the clinical situations which are responsible for activation of renin-angiotensin system and the rationale behind it	K	KH	Y	Lecture	Written/Viva voce			
PY7.3	**Describe the mechanism of urine formation involving processes of filtration, tubular reabsorption & secretion; concentration and diluting mechanism**	K	KH	Y	Lecture	Written/Viva voce			
PY7.3.1	Describe the role of glomerulus (filtration) and tubules (secretion and reabsorption)	K	KH	Y	Lecture	Written/Viva voce			
PY7.3.2	Describe the determinants of glomerular filtration (starling forces)	K	KH	Y	Lecture	Written/Viva voce			
PY7.3.3	Describe the regulation of RBF and GFR	K	KH	Y	Lecture	Written/Viva voce			
PY7.3.4	Enumerate the factors the ffecting GFR	K	KH	Y	Lecture	Written/Viva voce			
PY7.3.5	Discuss the method of estimation of GFR	K	KH	Y	Lecture	Written/Viva voce			
PY7.3.6	Describe the the differential properties of various segments of nephron	K	KH	Y	Lecture	Written/Viva voce			

PY7.3.7	discuss the mechanism involved in the reaabsorption of sodium in various segments and influences affectinh its reabsorption (hormones/transmitters/drugs)	K	KH	Y	Lecture	Written/Viva voce			
PY7.3.8	Discuss the role of peritubular capillaries in the reansoption,	K	KH	Y	Lecture	Written/Viva voce			
PY7.3.9	Describe the counter cuurent multiplier and counter current exchanger and their role in establishing and maintaining the osmolality in medullary interstium.	K	KH	Y	Lecture	Written/Viva voce			
PY7.3.10	Discuss the source , mechanism involved in the secrtion of ADH, Discuss the mechanism and site of action of ADH and its role in concentration of urine	K	KH	Y	Lecture	Written/Viva voce			
PY7.3.11	Discuss diabetes inspidus (central & nephrogenic) and syndrome of inappropriate ADH secretion(SIADH)	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY7.3.12	Discuss the role of urea in estblishing medullary osmolaliaty.	K	KH	Y	Lecture	Written/Viva voce			
PY7.4	**Describe & discuss the significance & implication of Renal clearance**	K	KH	Y	Lecture	Written/Viva voce			
PY7.4.1	Descibe the law of mass conservation	K	KH	Y	Lecture	Written/Viva voce			
PY7.4.2	Discuss the steps involved involved in deriving the eqaution for calculation of renal clearance.	K	KH	Y	Lecture	Written/Viva voce			
PY7.4.3	Discuss the effect of tubular activity (reabsorption and secretion) on the clearance.	K	KH	Y	Lecture	Written/Viva voce			
PY7.4.4	Discuss the rationale of using para amino hippuric acid for measuring plasma flow.	K	KH	Y	Lecture	Written/Viva voce			
PY7.4.5	Discuss the concept of free water clearance	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY7.5	**Describe the renal regulation of fluid and electrolytes & acid-base balance**	K	KH	Y	Lecture	Written/Viva voce			
PY7.5.1	Define filtered load. Describe the mechanism involved in the reabsoption/secretion of sodium, pottasium, bicarbonate, glucose, amino acids and factors affecting their reabsoption/secretion	K	KH	Y	Lecture	Written/Viva voce			
PY7.5.2	Discuss the factors affecting sodium reabsorption and role of ADH in water absorption,	K	KH	Y	Lecture	Written/Viva voce			
PY7.5.3	Describe the condition resposible for acid base disturbances.	K	KH	Y	Lecture	Written/Viva voce			
PY7.5.4	Discuss the concept of volatile and non volatile acid.	K	KH	Y	Lecture	Written/Viva voce			
PY7.5.5	Describe the role of kidney in acid base disturbances	K	KH	Y	Lecture	Written/Viva voce			
PY7.5.6	Enumerate the urinary buffers and their functional significance in handling acid base disturbances.	K	KH	Y	Lecture	Written/Viva voce			
PY7.5.7	Interpret the biochemical disturbances to classify the acid base disorder	K	KH	Y	Lecture	Written/Viva voce			
PY7.6	**Describe the innervations of urinary bladder, physiology of micturition and its abnormalities**	K	KH	Y	Lecture	Written/Viva voce			
PY7.6..1	Describe the physiological anatomy of urinary bladder and its innervation.	K	KH	Y	Lecture	Written/Viva voce			
PY7.6..2	Describe micturition reflex and bladder disorder.	K	KH	Y	Lecture	Written/Viva voce			
PY7.7	**Describe artificial kidney, dialysis and renal transplantation**	K	KH	Y	Lecture	Written/Viva voce		General medicine	
PY7.7.1	Describe the basic principle of dialysis.	K	KH	Y	Lecture	Written/Viva voce			

PY7.8	**Describe Renal Function Tests**	K	KH	Y	Lecture	Written/Viva voce			Biochemistry
PY7.8.1	Discuss and interpret the renal function test	K	KH	Y	Lecture	Written/Viva voce			
PY7.9	**Describe cystometry and discuss the normal cystometrogram**	K	KH	Y	Lecture	Written/Viva voce			
PY7.9.1	Describe the physiological response to filling of bladder (cystometrogram).	K	KH	Y	Lecture	Written/Viva voce			
Topic:Endocrine Physiology				**Number of competencies: (06)**				**Number of procedures for**	
Number	**COMPETENCY The student should be able to**	**Domain K/S/A/C**	**Level K/KH/ SH/P**	**Core (Y/N)**	**Teaching-Learning Methods**	**Assessment Methods**	**Number required to certify P**	**Vertical Integration**	**Horizontal Integration**
PY8.1	**Describe the structure of bone**	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.1	Enumerate cells involved in bone metabolism	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.2	Describe the functions of Osteoblast in bone formation and resorption	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.3	Describe the functions of Osteoclast in bone formation and resorption	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.4	Enumerate the organs that play central role in regulating movement of calcium between stores	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.5	Describe the mechanisms of calcium absorption	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.6	Describe the mechanisms of calcium excretion	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.7	Enumerate major hormones that regulate calcium homeostasis	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.8	Describe the role of parathyroid hormone in calcium homeostasis	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.9	Describe the role of 1,25-Dihydroxycholicalciferol in calcium homeostasis	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.10	Describe the role of Calcitonin hormone in calcium homeostasis	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.11	Describe the mechanisms of phosphate absorption	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.12	Describe the mechanisms of phosphate excretion	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.13	Describe the role of 1,25-Dihydroxycholicalciferol in phosphate metabolism	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.14	Describe the role of calcitonin in phosphate metabolism	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.15	Enumerate metabolic bone diseases	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.16	Describe the pathogenesis of metabolic bone diseases	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.17	Describe the features and management of osteomalacia	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.18	Describe the features and management of rickets	K	KH	Y	Lecture	Written/Viva voce			
PY8.1.19	Describe the pathogenesis of Osteoporosis	K	KH	Y	Lecture	Written/Viva voce			

PY8.1.20	Describe the features and management of Osteoporosis	K	KH	Y	Lecture	Written/Viva voce			
PY8.2	**Describe the synthesis, secretion, transport, physiological actions, regulation and effect of altered (hypo and hyper) secretion of pituitary gland, thyroid gland, parathyroid gland, adrenal gland, pancreas and hypothalamus**	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.1	List the various cell types and hormones synthesized by pituitary gland.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.2	List the hypothalamic hormones involved in the control of pituitary hormones	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.3	Enumerate the hormones and secretions of pituitary gland.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.4	Describe the factors that regulate growth hormone secretion.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.5	Describe the role of growth hormone in growth and metabolic functions of it.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.6	Discuss the pituitary secretion and regulation of gonadotropins	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.7	Describe the actions of gonadotropins on reproductive tissues.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.8	Discuss the pituitary secretion and regulation of Prolactin.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.9	Describe the functions of Prolactin on reproductive tissues.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.10	Discuss the role of the hypothalamus in producing and secreting hormones of the posterior pituitary.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.11	Discuss the functions of Vasopressin and the receptors on which it acts.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.12	Describe the regulation of Vasopressin.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.13	Discuss the functions of Oxytocin and the receptors on which it acts.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.14	Describe the regulation of Oxytocin.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.15	List the clinical features of panhypopituitarism, acromegaly, gigantism and dwarfism.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.16	Describe the disorders of posterior pituitary hormone.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.17	Describe the structure of thyroid gland.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.18	Describe iodine transport, metabolism and excretion in the body.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.19	Discuss role of iodine in the thyroid gland.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.20	Enumerate hormones synthesized by thyroid gland.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.21	Describe the chemical nature of the thyroid hormones (T3 & T4).	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.22	Describe the biosynthesis and secretion of thyroid hormones (T3 & T4)	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.23	Describe metabolism and excretion of thyroid hormones (T3 & T4).	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.24	Explain the relevance of protein carriers in the blood for transport of thyroid hormones.	K	KH	Y	Lecture	Written/Viva voce			

PY8.2.25	Describe feedback control for thyroid hormone release and its relevance for its homeostasis.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.26	Describe mechanism of action of thyroid hormones (T3 & T4).	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.27	Describe mechanism of action of thyroid stimulating hormone (TSH)	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.28	Describe mechanism of action of thyrotropin releasing hormone (TRH)	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.29	Describe the physiological effects of thyroid hormones (T3 & T4).	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.30	Differentiate between thyroxine (T4) and triiodothyronine (T3).	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.31	Describe various causes of hyperthyroidism along with their main clinical features.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.32	Describe the main causes and clinical features of hypothyroidism.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.33	Describe antithyroid drugs alongwith other treatment modalities for hyperthyroidism.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.34	Discuss treatment of hypothyroidism.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.35	Describe synthesis of calcitonin.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.36	Describe mechanism of action of Calcitonin on target cells in regulating body calcium levels.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.37	Describe regulation of secretion of calcitonin from parafollicular cells.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.38	Discuss role of calcitonin in maintaining calcium and phosphate homeostasis.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.39	Describe structure of parathyroid gland.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.40	Describe synthesis and secretion of parathormone.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.41	Describe regulation of secretion of parathormone.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.42	Describe mechanism of action of parathormone.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.43	Discuss physiological effects of parathormone in regulating Calcium and phosphate homeostasis in body.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.44	Describe clinical signs and symptoms of hypoparathyroidism.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.45	Discuss causes of hyperparathyroidism alongwith clinical features.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.46	Enumerate the three catecholamines secreted by adrenal medulla.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.47	Describe the biosynthesis of catecholamines.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.48	Describe the metabolism of catecholamines	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.49	Describe the functions of catecholamines	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.50	Describe the catecholamine mediated responses in Fight and flight response	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.51	Describe the steps involved in steroid biosynthesis in the adrenal cortex	K	KH	Y	Lecture	Written/Viva voce			

PY8.2.52	Describe the transport of glucocorticoids	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.53	Describe the metabolism of glucocorticoids	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.54	Describe the mechanisms by which glucocorticoids produce changes in cellular function	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.55	Describe the physiologic effects of glucocorticoids	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.56	Describe the pharmacologic effects of glucocorticoids	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.57	Describe the role of ACTH in regulation of secretion of glucocorticoids	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.58	Describe the transport of mineralocorticoids	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.59	Describe the metabolism of mineralocorticoids	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.60	Describe the mechanisms by which aldosterone produce changes in cellular function	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.61	Describe the physiologic actions of mineralocorticoids	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.62	Describe the mechanisms that regulate aldosterone secretion	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.63	Describe the transport of adrenal sex hormones	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.64	Describe the metabolism of adrenal sex hormones	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.65	Describe the mechanisms that regulate secretion of adrenal sex hormones	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.66	Describe the physiologic effects ofadrenal androgens	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.67	Describe the etiology of adrenal insufficiency	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.68	Describe the pathogenesis of adrenal insufficiency	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.69	Describe the features of adrenal insufficiency	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.70	Describe the laboratory features of adrenal insufficiency	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.71	Describe the complications of adrenal insufficiency	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.72	Describe the secondary adrenal insufficiency	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.73	Describe the tertiary adrenal insufficiency	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.74	Describe the etiology of cushing's syndrome	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.75	Describe the pathogenesis of cushing's syndrome	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.76	Describe the features of cushing's syndrome	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.77	Describe the laboratory features of cushing's syndrome	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.78	Describe the complications of cushing's syndrome	K	KH	Y	Lecture/SGD	Written/Viva voce			

PY8.2.79	Describe the various enzyme deficiencies of enzyme systems involved in steroid biosynthesis	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.80	List the various cell types and hormones synthesized by pancreas.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.81	Describe the structure of insulin.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.82	Describe the steps involved in biosynthesis and release of insulin into the blood stream	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.83	Discuss the major factors that affect the secretion of insulin.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.84	Describe the mechanism of action of insulin	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.85	Describe physiological actions of insulin	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.86	Describe the regulation of glucagon secretion.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.87	Describe physiological actions of glucagon.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.88	Describe the regulation of somatostatin secretion.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.89	Describe physiological actions of somatostatin.	K	KH	Y	Lecture	Written/Viva voce			
PY8.2.90	Discuss the consequences of insulin deficiency.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.91	Describe signs and symptoms of diabetes mellitus.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.92	Discuss the major differences between type 1 and type 2 diabetes.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.2.93	Describe management of different types of diabetes mellitus.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.3	**Describe the physiology of Thymus & Pineal Gland**	K	KH	Y	Lecture	Written/Viva voce			
PY 8.3.1	Describe the structure of Thymus	K	KH	Y	Lecture	Written/Viva voce			
PY 8.3.2	Describe the secretions of Thymus	K	KH	Y	Lecture	Written/Viva voce			
PY 8.3.3	Describe the functions of Thymus	K	KH	Y	Lecture	Written/Viva voce			
PY 8.3.4	Describe the structure of Pineal gland	K	KH	Y	Lecture	Written/Viva voce			
PY 8.3.5	Describe the secretion of Pineal Gland	K	KH	Y	Lecture	Written/Viva voce			
PY 8.3.6	Describe the regulation of Pineal gland secretion	K	KH	Y	Lecture	Written/Viva voce			
PY 8.3.7	Describe the functions of Pineal gland	K	KH	Y	Lecture	Written/Viva voce			
PY8.4	**Describe function tests: Thyroid gland; Adrenal cortex, Adrenal medulla and pancreas**	K	KH	Y	Lecture	Written/Viva voce			Biochemistry
PY8.4.1	Describe various thyroid function tests.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.4.2	Describe the adrenal function tests	K	KH	Y	Lecture/SGD	Written/Viva voce			

PY8.5	**Describe the metabolic and endocrine consequences of obesity & metabolic syndrome, Stress response. Outline the psychiatry component pertaining to metabolic syndrome.**	K	KH	Y	Lecture	Written/Viva voce			
PY8.5.1	Define BMI	K	KH	Y	Lecture	Written/Viva voce			
PY8.5.1	Define obesity and its cosequences	K	KH	Y	Lecture	Written/Viva voce			
PY8.5.3	Define metabolic syndrome and its cosequences	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.5.4	Define stress response and its cosequences	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY8.6	**Describe & differentiate the mechanism of action of steroid, protein and amine hormones**	K	KH	Y	Lecture	Written/Viva voce			
PY8.6.1	Discuss chemical classification of hormones.	K	KH	Y	Lecture	Written/Viva voce			
PY8.6.2	Describe how protein hormones are synthesized and secreted from longer precursors alongwith relevant examples.	K	KH	Y	Lecture	Written/Viva voce			
PY8.6.3	Enumerate hydrophobic hormones and discuss importance of carrier proteins in transport of these hormones.	K	KH	Y	Lecture	Written/Viva voce			
PY8.6.4	Describe mechanism of action of steroid hormones.	K	KH	Y	Lecture	Written/Viva voce			
PY8.6.5	Describe mechanism of action of amine hormones.	K	KH	Y	Lecture	Written/Viva voce			
PY8.6.6	Explain G- Protein coupled receptors.	K	KH	Y	Lecture	Written/Viva voce			
PY8.6.7	Describe various steps of signal transduction via membrane receptors.	K	KH	Y	Lecture	Written/Viva voce			
PY8.6.8	Describe CAMP mediated pathway of hormonal action and list the hormones acting via same.	K	KH	Y	Lecture	Written/Viva voce			
PY8.6.9	Describe CGMP mediated pathway of hormonal action and list the hormones acting via same.	K	KH	Y	Lecture	Written/Viva voce			
PY8.6.10	Describe DAG and IP3 mediated pathway of hormonal action and list the hormones acting via same.	K	KH	Y	Lecture	Written/Viva voce			
PY8.6.11	Describe JAK- STAT pathway of hormonal action and list the hormones acting via same.	K	KH	Y	Lecture	Written/Viva voce			
PY8.6.12	Differentiate between mechanism of action of steroid and protein hormones.	K	KH	Y	Lecture	Written/Viva voce			
Topic: Reproductive Physiology					**Number of competencies: (12)**			**Number of procedures for**	
Number	**COMPETENCY The student should be able to**	**Domain K/S/A/C**	**Level K/KH/ SH/P**	**Core (Y/N)**	**Teaching-Learning Methods**	**Assessment Methods**	**Number required to certify P**	**Vertical Integration**	**Horizontal Integration**
PY9.1	**Describe and discuss sex determination; sex differentiation and their abnormities and outline psychiatry and practical implication of sex determination.**	K	KH	Y	Lecture	Written/Viva voce			
PY9.1.1	Describe chromosomal sex determination in a fetus.	K	KH	Y	Lecture	Written/Viva voce			
PY9.1.2	Describe barr body alongwith its physiological role.	K	KH	Y	Lecture	Written/Viva voce			
PY9.1.3	Describe how chromosomal sex determines gonadal sex in a fetus.	K	KH	Y	Lecture	Written/Viva voce			
PY9.1.4	Describe gonadal differentiation and development in a fetus.	K	KH	Y	Lecture	Written/Viva voce			

PY9.1.5	Describe differentiation and development of the internal genital ducts in a fetus.	K	KH	Y	Lecture	Written/Viva voce			
PY9.1.6	Describe differentiation and development of the external genitalia in a fetus.	K	KH	Y	Lecture	Written/Viva voce			
PY9.1.7	Describe affect of androgens on brain development in a fetus.	K	KH	Y	Lecture	Written/Viva voce			
PY9.1.8	Describe various hormonal control mechanisms in sexual differentiation and development.	K	KH	Y	Lecture	Written/Viva voce			
PY9.1.9	Describe various abnormalities related to aberrant chromosomal sex in a fetus.	K	KH	Y	Lecture	Written/Viva voce			
PY9.1.10	Describe various abnormalities of aberrant phenotype development in a fetus.	K	KH	Y	Lecture	Written/Viva voce			
PY9.2	**Describe and discuss puberty: onset, progression, stages; early and delayed puberty and outline adolescent clinical and psychological association.**	K	KH	Y	Lecture	Written/Viva voce			
PY9.2.1	Describe physiological basis of onset of puberty.	K	KH	Y	Lecture	Written/Viva voce			
PY9.2.2	Describe stages of puberty in a female.	K	KH	Y	Lecture	Written/Viva voce			
PY9.2.3	Describe stages of puberty in a male.	K	KH	Y	Lecture	Written/Viva voce			
PY9.2.4	Describe hormonal changes that occur at puberty in males.	K	KH	Y	Lecture	Written/Viva voce			
PY9.2.5	Describe hormonal changes that occur at puberty in females.	K	KH	Y	Lecture	Written/Viva voce			
PY9.2.6	Describe various abnormalities of pubertal onset.	K	KH	Y	Lecture	Written/Viva voce			
PY9.3	**Describe male reproductive system: functions of testis and control of spermatogenesis & factors modifying it and outline its association with psychiatric illness**	K	KH	Y	Lecture	Written/Viva voce			
PY9.3.5	Describe the structure and funtions of testis	K	KH	Y	Lecture	Written/Viva voce			
PY9.3.6	Name the hormones secreted by Leydig cells and Sertoli cells of the testis.	K	KH	Y	Lecture	Written/Viva voce			
PY9.3.2	Describe the biosynthesis of testosterone	K	KH	Y	Lecture	Written/Viva voce			
PY9.3.3	Describe the transport and metabolism of testosterone	K	KH	Y	Lecture	Written/Viva voce			
PY9.3.4	Describe the functions of testosterone	K	KH	Y	Lecture	Written/Viva voce			
PY9.3.7	Enumerate the steps involved in spermatogenesis	K	KH	Y	Lecture	Written/Viva voce			
PY9.3.8	Describe the processes involved in regulation of testosterone secretion.	K	KH	Y	Lecture	Written/Viva voce			
PY9.3.9	Outline the mechanisms that produce erection and ejaculation	K	KH	Y	Lecture	Written/Viva voce			
PY9.4	**Describe female reproductive system: (a) functions of ovary and its control; (b) menstrual cycle - hormonal, uterine and ovarian changes**	K	KH	Y	Lecture	Written/Viva voce			
PY9.4.1	Describe the ovarian cycle	K	KH	Y	Lecture	Written/Viva voce			
PY9.4.2	Describe the roles of the pituatary and hypothalamus in the regulation of ovarian function	K	KH	Y	Lecture	Written/Viva voce			

PY9.4.3	Describe the role of feedback loops in regulation of ovarian function	K	KH	Y	Lecture	Written/Viva voce			
PY9.4.4	Describe different phases of menstrual cycle.	K	KH	Y	Lecture	Written/Viva voce			
PY9.4.5	Describe hormonal changes during normal menstrual cycle.	K	KH	Y	Lecture	Written/Viva voce			
PY9.4.6	Describe follicular changes during menstrual cycle and its hormonal regulation.	K	KH	Y	Lecture	Written/Viva voce			
PY9.4.7	Describe endometrial or uterine changes during normal menstrual cycle and role of hormones in these changes.	K	KH	Y	Lecture	Written/Viva voce			
PY9.4.8	Describe changes in vaginal cytology with menstrual cycle phases.	K	KH	Y	Lecture	Written/Viva voce			
PY9.4.9	Describe changes in cervical secretions with menstrual cycle phases.	K	KH	Y	Lecture	Written/Viva voce			
PY9.4.10	Describe how hormonal, ovarian, uterine, cervical and vaginal changes interconnected in a menstrual cycle.	K	KH	Y	Lecture	Written/Viva voce			
PY9.4.11	Describe various indicators of ovulation.	K	KH	Y	Lecture	Written/Viva voce			
PY9.4.12	Describe various tests of ovulation.	K	KH	Y	Lecture	Written/Viva voce			
PY9.4.13	Enumerate and define various disorders of menstrual cycle.	K	KH	Y	Lecture	Written/Viva voce			
PY9.5.1	**Describe and discuss the physiological effects of sex hormones**	K	KH	Y	Lecture	Written/Viva voce			
PY9.5.1	Enumerate the naturally occuring estrogens	K	KH	Y	Lecture	Written/Viva voce			
PY9.5.2	Enumerate the synthetic, endogenous estrogens	K	KH	Y	Lecture	Written/Viva voce			
PY9.5.3	Describe the mechanism of action of estrogens	K	KH	Y	Lecture	Written/Viva voce			
PY9.5.4	Describe the physiological effects of 17α-estradiol	K	KH	Y	Lecture	Written/Viva voce			
PY9.5.5	Describe the biosynthesis of Progesterone	K	KH	Y	Lecture	Written/Viva voce			
PY9.5.6	Describe the mechanism of action of progesterone	K	KH	Y	Lecture	Written/Viva voce			
PY9.5.7	Describe the transport of progesterone	K	KH	Y	Lecture	Written/Viva voce			
PY9.5.8	Describe the physiological effects of progesterone	K	KH	Y	Lecture	Written/Viva voce			
PY9.5.9	Describe the role of other ovarian hormones	K	KH	Y	Lecture	Written/Viva voce			
PY9.5.10	Describe the physiological actions of testosterone in male before puberty	K	KH	Y	Lecture	Written/Viva voce			
PY9.5.11	Describe the physiological actions of testosterone in male after puberty.	K	KH	Y	Lecture	Written/Viva voce			
PY9.6	**Enumerate the contraceptive methods for male and female. Discuss their advantages & disadvantages**	K	KH	Y	Lecture	Written/Viva voce		OBG & Community Mediene	
PY9.6.1	List the temporary male contraceptives methods.	K	KH	Y	Lecture	Written/Viva voce			
PY9.6.2	List the permanent male contraceptives methods.	K	KH	Y	Lecture	Written/Viva voce			

PY9.6.3	Describe the traditional and recent permanent male contraceptives procedure in detail.	K	KH	Y	Lecture	Written/Viva voce			
PY9.6.4	Describe the advantages and disadvantages of each of them.	K	KH	Y	Lecture	Written/Viva voce			
PY9.6.5	List the temporary female contraceptive methods.	K	KH	Y	Lecture	Written/Viva voce			
PY9.6.6	List the permanent female contraceptive methods.	K	KH	Y	Lecture	Written/Viva voce			
PY9.6.7	Describe different female contraceptive methods.	K	KH	Y	Lecture	Written/Viva voce			
PY9.6.8	Describe the advantages and disadvantages of each of them.	K	KH	Y	Lecture	Written/Viva voce			
PY9.7	**Describe and discuss the effects of removal of gonads on physiological functions**	K	KH	Y	Lecture	Written/Viva voce			
PY9.7.1	Describe the effects of removal of ovary on physiological functions	K	KH	Y	Lecture	Written/Viva voce			
PY9.7.2	Describe the hormonal changes that occur at menopause	K	KH	Y	Lecture	Written/Viva voce			
PY9.7.3	Define orchidectomy.	K	KH	Y	Lecture	Written/Viva voce			
PY9.7.4	Describe the causes of orchidectomy.	K	KH	Y	Lecture	Written/Viva voce			
PY9.7.5	Discuss the physiological effects of orchidectomy on male secondary sexual characteristics before puberty.	K	KH	Y	Lecture	Written/Viva voce			
PY9.7.6	Discuss the physiological effects of orchidectomy on male secondary sexual characteristics after puberty.	K	KH	Y	Lecture	Written/Viva voce			
PY9.8	**Describe and discuss the physiology of pregnancy, parturition & lactation and outline the psychology and psychiatry-disorders associated with it.**	K	KH	Y	Lecture	Written/Viva voce		OBG	
PY9.8.1	Describe the fertilization and implantation process	K	KH	Y	Lecture	Written/Viva voce			
PY9.8.2	Describe the formation of placenta	K	KH	Y	Lecture	Written/Viva voce			
PY9.8.2.1	Describe the functions of placenta	K	KH	Y	Lecture	Written/Viva voce			
PY9.8.2.2	Describe the hormones secreted by placenta	K	KH	Y	Lecture	Written/Viva voce			
PY9.8.2.3	Describe the Fetoplacental unit	K	KH	Y	Lecture	Written/Viva voce			
PY9.8.4	Describe the physiological changes that occur during pregnancy	K	KH	Y	Lecture	Written/Viva voce			
PY9.8.5	Define parturition.Describe the steps involved in parturition	K	KH	Y	Lecture	Written/Viva voce			
PY9.8.6	Describe the mechanisms and factors involved in lactation.	K	KH	Y	Lecture	Written/Viva voce			
PY9.8.7	Discuss the neuroendocrine regulation of milk secretion.	K	KH	Y	Lecture	Written/Viva voce			
PY9.8.8	Discuss milk ejection reflex.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY9.8.9	Define postpartum psychosis. Discuss the causes of it.	K	KH	Y	Lecture	Written/Viva voce			
PY9.8.10	Discuss the adverse effect of postpartum psychosis on mother and baby.	K	KH	Y	Lecture	Written/Viva voce			

PY9.8.11	Discuss the treatment of postpartum psychosis	K	KH	Y	Lecture	Written/Viva voce			
PY9.9	**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**	K	KH	Y	Lecture	Written/Viva voce			
PY9.9.1	List the causes of advising semen analysis investigation	K	KH	Y	Lecture	Written/Viva voce			
PY9.9.2	Mention the different methods by which semen analysis is done	K	KH	Y	Lecture	Written/Viva voce			
PY9.9.3	Mention the precautions advised prior to semen collection.	K	KH	Y	Lecture	Written/Viva voce			
PY9.9.4	List the normal semen analysis values as per recent WHO guidelines.	K	KH	Y	Lecture	Written/Viva voce			
PY9.9.5	List the normal sperm count and conditions where it is affected.	K	KH	Y	Lecture	Written/Viva voce			
PY9.9.6	Describe the normal morphology of sperm.	K	KH	Y	Lecture	Written/Viva voce			
PY9.9.7	Describe the factors responsible for normal sperm motility.	K	KH	Y	Lecture	Written/Viva voce			
PY9.9.8	Describe the condition where sperm motility is affected.	K	KH	Y	Lecture	Written/Viva voce			
PY9.10	**Discuss the physiological basis of various pregnancy tests**	K	KH	Y	Lecture	Written/Viva voce		OBG	
PY9.10.1	Describe various biological diagnostic tests of pregnancy.	K	KH	Y	Lecture	Written/Viva voce			
PY9.10.2	Describe various immunological tests of pregnancy.	K	KH	Y	Lecture	Written/Viva voce			
PY9.10.3	Describe the advantages and disadvantages of each of them.	K	KH	Y	Lecture	Written/Viva voce			
PY9.10.4	Describe various signs of pregnancy seen in ultrasonography.	K	KH	Y	Lecture	Written/Viva voce			
PY9.11	**Discuss the hormonal changes and their effects during perimenopause and menopause**	K	KH	Y	Lecture	Written/Viva voce		OBG	
PY9.11.1	Discuss the hormone changes during perimenopause.	K	KH	Y	Lecture	Written/Viva voce			
PY9.11.2	Discuss the effects of hormonal changes during perimenopause	K	KH	Y	Lecture	Written/Viva voce			
PY9.11.3	Discuss the hormone changes during menopause.	K	KH	Y	Lecture	Written/Viva voce			
PY9.11.4	Discuss the effects of hormonal changes during menopause	K	KH	Y	Lecture	Written/Viva voce		OBG	
PY9.12	**Discuss the common causes of infertility in a couple and role of IVF in managing a case of infertility.**	K	KH	Y	Lecture	Written/Viva voce			
PY9.12.1	Describe the common causes of infertility in a couple	K	KH	Y	Lecture	Written/Viva voce			
PY9.12.2	Describe the role of IVF in managing a case of infertility	K	KH	Y	Lecture	Written/Viva voce			
Topic: Neurophysiology				**Number of competencies: (20)**					**Number of procedures for**
Number	**COMPETENCY The student should be able to**	**Domain K/S/A/C**	**Level K/KH/ SH/P**	**Core (Y/N)**	**Teaching-Learning Methods**	**Assessment Methods**	**Number required to certify P**	**Vertical Integration**	**Horizontal Integration**

PY10.1	**Describe and discuss the organization of nervous system.**	K	KH	Y	Lecture	Written/Viva voce			
PY10.1.1	Discuss the organization of nervous system	K	KH	Y	Lecture	Written/Viva voce			
PY10.1.2	Describe the anatomical and functional divisions of nervous system.	K	KH	Y	Lecture	Written/Viva voce			
PY10.1.3	Describe the major levels of central nervous system.	K	KH	Y	Lecture	Written/Viva voce			
PY10.2	**Describe and discuss the functions and properties of synapse,reflex, receptors.**	K	KH	Y	Lecture	Written/Viva voce			
PY10.2.1	Define synapse.	K	KH	Y	Lecture	Written/Viva voce			
PY10.2.2	List the types of synapse.	K	KH	Y	Lecture	Written/Viva voce			
PY10.2.3	Draw a typical synapse and label its parts.	K	KH	Y	Lecture	Written/Viva voce			
PY10.2.4	Describe ionic basis of generation of Excitatory postsynaptic potential (EPSP) & Inhibitory post synaptic potential (IPSP)	K	KH	Y	Lecture	Written/Viva voce			
PY10.2.5	Differentiate between Excitatory post synaptic potential (EPSP) & Inhibitory post synaptic potential (IPSP)	K	KH	Y	Lecture	Written/Viva voce			
PY10.2.6	Define : end plate potential (EPP) and receptor (generator) potential.	K	KH	Y	Lecture	Written/Viva voce			
PY10.2.7	Differentiate between chemical synapse and electrical synapse.	K	KH	Y	Lecture	Written/Viva voce			
PY10.2.8	Enumerate properties of synaptic transmission.	K	KH	Y	Lecture	Written/Viva voce			
PY10.2.9	Explain properties of sensory receptors	K	KH	Y	Lecture	Written/Viva voce			
PY10.3	**Describe and discuss somatic sensations & sensory tracts**	K	KH	Y	Lecture	Written/Viva voce			
PY10.3.1	List the sensations carried in dorsal column pathway and anterolateral system	K	KH	Y	Lecture	Written/Viva voce			
PY10.3.2	Define and classify pain sensation	K	KH	Y	Lecture	Written/Viva voce			
PY10.3.3	Describe endogenous analgesia system	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY10.4	**Describe and discuss motor tracts, mechanism of maintenance of tone, control of body movements, posture and equilibrium & vestibular apparatus**	K	KH	Y	Lecture	Written/Viva voce			
PY10.4.1	Classify descending pathways and give their functions	K	KH	Y	Lecture	Written/Viva voce			
PY10.4.2	List the postural reflexes integrated at different levels of neuraxis	K	KH	Y	Lecture	Written/Viva voce			
PY10.4.3	Explain decerebrate and decorticate rigidity	K	KH	Y	Lecture	Written/Viva voce			
PY10.4.4	List components of vestibular apparatus and give their functions	K	KH	Y	Lecture	Written/Viva voce			
PY10.4.5	Explain mechanism of generation of action potential in hair cells	K	KH	Y	Lecture	Written/Viva voce			
PY10.4.6	Explain vestibular dysfunctions	K	KH	Y	Lecture	Written/Viva voce			
PY10.5	**Describe and discuss structure and functions of reticular activating system, autonomic nervous system (ANS)**	K	KH	Y	Lecture	Written/Viva voce			

PY10.5.1	List the components and functions of brainstem reticular activating system	K	KH	Y	Lecture	Written/Viva voce			
PY10.5.2	Explain functional organisation of autonomic nervous system	K	KH	Y	Lecture	Written/Viva voce			
PY10.5.3	List the functions of symapthetic and parasympathetic system	K	KH	Y	Lecture	Written/Viva voce			
PY10.6	**Describe and discuss Spinal cord, its functions, lesion & sensory disturbances**	K	KH	Y	Lecture	Written/Viva voce			
PY10.6.1	Explain functions of spinal cord and its structure	K	KH	Y	Lecture	Written/Viva voce			
PY10.6.2	Explain defects produced at different levels of spinal cord lesion	K	KH	Y	Lecture	Written/Viva voce			
PY10.7	**Describe and discuss functions of cerebral cortex, basal ganglia, thalamus, hypothalamus, cerebellum and limbic system and their abnormalities**	K	KH	Y	Lecture	Written/Viva voce			
PY10.7.1	Name association cortical areas and list functions of neocortex	K	KH	Y	Lecture	Written/Viva voce			
PY10.7.2	Explain concept of cortical plasticity	K	KH	Y	Lecture	Written/Viva voce			
PY10.7.3	Explain neural connections and functions of basal ganglia	K	KH	Y	Lecture	Written/Viva voce			
PY10.7.3	Describe dysfunctions of basal ganglia	K	KH	Y	Lecture	Written/Viva voce			
PY10.7.4	List the functions of thalamus and correlate them with thalamic dysfunctions	K	KH	Y	Lecture	Written/Viva voce			
PY10.7.5	List the functions of hypothalamus	K	KH	Y	Lecture	Written/Viva voce			
PY10.7.6	Describe the regulation of food intake by hypothalamus	K	KH	Y	Lecture	Written/Viva voce			
PY10.7.7	Explain cerebellar connections inputs and outputs	K	KH	Y	Lecture	Written/Viva voce			
PY10.7.8	List and describe the functions of cerebellum	K	KH	Y	Lecture	Written/Viva voce			
PY10.7.9	Explain features of cerebellar disorder an physiological basis of dysfunctions	K	KH	Y	Lecture	Written/Viva voce			
PY10.7.10	List cerebellar function tests	K	KH	Y	Lecture	Written/Viva voce			
PY10.7.11	Name components and functions of Papez circuit	K	KH	Y	Lecture	Written/Viva voce			
PY10.8	**Describe and discuss behavioural and EEG characteristics during sleep and mechanism responsible for its production**	K	KH	Y	Lecture	Written/Viva voce		Psychiatry	
PY10.8.1	Name EEG waves and their mechanism of genesis	K	KH	Y	Lecture	Written/Viva voce			
PY10.8.2	Describe stages of sleep and EEG waves in different stages of sleep	K	KH	Y	Lecture	Written/Viva voce			
PY10.8.3	Differentiate between NREM and REM sleep	K	KH	Y	Lecture	Written/Viva voce			
PY10.8.4	Explain physiological basis of sleep disorders	K	KH	Y	Lecture	Written/Viva voce			
PY10.9	**Describe and discuss the physiological basis of memory, learning and speech**	K	KH	Y	Lecture	Written/Viva voce		Psychiatry	
PY10.9.1	Define and classify learning and memory	K	KH	Y	Lecture	Written/Viva voce			

PY10.9.2	Describe the mechanism of learning and memory	K	KH	Y	Lecture	Written/Viva voce			
PY10.9.3	Explain physiological basis of abnormailities of learning and memory	K	KH	Y	Lecture	Written/Viva voce			
PY10.10	**Describe and discuss chemical transmission in the nervous system. (Outline the psychiatry element).**	K	KH	Y	Lecture	Written/Viva voce			
PY10.10.1	Classify neurotransmitters	K	KH	Y	Lecture	Written/Viva voce			
PY 10.10.2	Explain functions of common neurotransmitters	K	KH	Y	Lecture	Written/Viva voce			
PY10.11	**Demonstrate the correct clinical examination of the nervous system: Higher functions, sensory system, motor system, reflexes, cranial nerves in a normal volunteer or simulated environment**	S	P	Y	DOAP sessions	Skill assessment/ Viva voce/OSCE	1 each (total 5)		
PY10.12	Understand the importance of history taking and consent for clinical examination.	S	P	Y	DOAP sessions	Skill assessment/ Viva voce/OSCE			
PY10.13	perform the motor system examination	S	P	Y	DOAP sessions	Skill assessment/ Viva voce/OSCE			
PY10.14	perform the sensory system examination	S	P	Y	DOAP sessions	Skill assessment/ Viva voce/OSCE			
PY10.15	perform the cranial nerve examination	S	P	Y	DOAP sessions	Skill assessment/ Viva voce/OSCE			
p	**Identify normal EEG forms**	S	S	Y	Small group teaching	OSPE/Viva voce		Psychiatry	
PY10.12.1	Identify the EEG types and correlate with the clinical condition.	K	KH	Y	Small group teaching				
PY10.13	**Describe and discuss perception of smell and taste sensation**	K	KH	Y	Lecture	Written/Viva voce		ENT	
PY10.13.1	List the types of taste sensation.	K	KH	Y	Lecture	Written/Viva voce			
PY10.13.2	Describe the types of taste receptors.	K	KH	Y	Lecture	Written/Viva voce			
PY10.13.3	Describe the location, structure, and afferent pathways of taste receptors.	K	KH	Y	Lecture	Written/Viva voce			
PY10.13.4	Describe the mechanism stimulation of taste buds.	K	KH	Y	Lecture	Written/Viva voce			
PY10.13.5	Describe the anatomical structure of olfactory membrane and olfactory cell.	K	KH	Y	Lecture	Written/Viva voce			
PY10.13.6	Explain how olfactory receptors are activated and explain the mechanism of olfactory transduction.	K	KH	Y	Lecture	Written/Viva voce			
PY10.13.7	Describe the location, structure, and afferent pathway of olfactory receptors.	K	KH	Y	Lecture	Written/Viva voce			
PY10.14	**Describe and discuss patho-physiology of altered smell and taste sensation.**	K	KH	Y	Lecture	Written/Viva voce		ENT	
PY10.14.1	Enumerate the diorders of altered smell.	K	KH	Y	Lecture	Written/Viva voce			
PY10.14.2	Enumerate the causes of anosmia/hyposmia.	K	KH	Y	Lecture	Written/Viva voce			

PY10.14.3	Enumerate the diorders of taste.	K	KH	Y	Lecture	Written/Viva voce			
PY10.14.4	Discuss patho-physiology of altered smell and taste.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY10.15	**Describe and discuss functional anatomy of ear and auditory pathways & physiology of hearing**	K	KH	Y	Lecture	Written/Viva voce		ENT	
PY10.15.1	Describe the anatomy of ear.	K	KH	Y	Lecture	Written/Viva voce			
PY10.15.2	Describe the structure of middle ear.	K	KH	Y	Lecture	Written/Viva voce			
PY10.15.3	Describe the function of the outer, middle, and inner ear structures.	K	KH	Y	Lecture	Written/Viva voce			
PY10.15.4	Define impedence matching.	K	KH	Y	Lecture	Written/Viva voce			
PY10.15.5	Describe with a help of diagram the functional anatomy of cochlea.	K	KH	Y	Lecture	Written/Viva voce			
PY10.15.6	Describe the structure and function of organ of corti.	K	KH	Y	Lecture	Written/Viva voce			
PY10.15.7	Explain the mechanism of sound transduction.	K	KH	Y	Lecture	Written/Viva voce			
PY10.15.8	Draw the auditory pathways including all central connections.	K	KH	Y	Lecture	Written/Viva voce			
PY10.15.9	Define coclear microphonics.	K	KH	Y	Lecture	Written/Viva voce			
PY10.15.10	Describe acoustic reflex.	K	KH	Y	Lecture	Written/Viva voce			
PY10.15.11	Expalin the theories of pitch discrimination.	K	KH	Y	Lecture	Written/Viva voce			
		K	KH	Y	Lecture	Written/Viva voce			
PY10.16	**Describe and discuss pathophysiology of deafness. Describe hearing tests**	K	KH	Y	Lecture	Written/Viva voce		ENT	
PY10.16.1	Describe the types of deafness.	K	KH	Y	Lecture	Written/Viva voce			
PY10.16.2	Define masking.	K	KH	Y	Lecture	Written/Viva voce			
PY10.16.3	Compare and contrast the conductive and sensorineural deafness.	K	KH	Y	Lecture	Written/Viva voce			
PY10.16.4	Discuss various hearing tests	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY10.16.5	Describe audiometry.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY10.17	**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**	K	KH	Y	Lecture	Written/Viva voce		OPHTHALMOLOGY	
PY10.17.1	Describe the functional anatomy of eye.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.2	Describe the refraction of light as it passes through the eye to the retina, identifying the eye components that account for refraction of light at the center of the eye and away from the center.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.3	Define refreactive index.	K	KH	Y	Lecture	Written/Viva voce			

PY10.17.4	Define focal length of a lens.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.5	What is reduced eye?	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.6	Define accomodation.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.7	Define emmetropic eye.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.8	Enumerate the various refractory errors of eye.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.9	Discuss the correction of refractory errors.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY10.17.10	Define visual acuity and field of vision.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.11	Describe with suitable diagram functional anatomy of retina.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.12	Describe with suitable diagram functional anatomy of retina.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.13	Draw a diagram showing layers of retina.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.14	Differentiate between rods and cones.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.15	Enumerate the steps of phototransduction.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.16	Describe the retinal visual cycle.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.17	What is night blindness.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.18	Define photoptic and scotoptic vision.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.19	Explain the theories of clolour vision.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.20	Enumerate the primary colours and their wavelengths.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.21	Discuss the colour blindness.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY10.17.22	Expalin with the help of diagram visual pathway.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.23	Describe pupillary reflexes.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.24	Draw the pathway of pupillary light reflex.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.25	Describe the pathway of accomodation reflex.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.26	List visual areas of the cortex.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.27	Enumerate the extraocular muscles and nerves involved in the movement of eyeball.	K	KH	Y	Lecture	Written/Viva voce			
PY10.17.28	Discuss the functions of extarocular muscles.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY10.18	**Describe and discuss the physiological basis of lesion in visual pathway.**	K	KH	Y	Lecture	Written/Viva voce		Ophthalmology	
PY10.18.1	Describe with help of diagram the physiological basis of lesions in visual pathway.	K	KH	Y	Lecture	Written/Viva voce			

PY10.18.2	Define cortical blindness.	K	KH	Y	Lecture	Written/Viva voce			
PY10.18.3	Define strasbismus.	K	KH	Y	Lecture	Written/Viva voce			
PY10.18.4	Discuss nystagmus and list the causes.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY10.19	**Describe and discuss auditory & visual evoke potentials**	K	KH	Y	Lecture	Written/Viva voce		Ophthalmology	
PY10.19.1	Define evoke potential.	K	KH	Y	Lecture	Written/Viva voce			
PY10.19.2	Discuss the clinical significance of performing auditory and visual evoked potential.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY10.19.3	Differentiate between EEG and Evoked potentials.	K	KH	Y	Lecture	Written/Viva voce			
Topic: Integrated Physiology					**Number of competencies: (14)**				**Number of**
Number	**COMPETENCY The student should be able to**	**Domain K/S/A/C**	**Level K/KH/ SH/P**	**Core (Y/N)**	**Teaching-Learning Methods**	**Assessment Methods**	**Number required to certify P**	**Vertical Integration**	**Horizontal Integration**
PY11.1	**Describe and discuss mechanism of temperature regulation**	K	KH	Y	Lecture	Written/Viva voce			
PY11.1.1	Discuss the heat generating mechanisms .	K	KH	Y	Lecture	Written/Viva voce			
PY11.1.2	Discuss the heat lossing mechanisms .	K	KH	Y	Lecture	Written/Viva voce			
PY11.1.3	Discuss the role of hypothalamus in temperature regulation.	K	KH	Y	Lecture	Written/Viva voce			
PY11.1.4	Enumerate and discuss the mechanisms involved in body temperature regualtion.	K	KH	Y	Lecture	Written/Viva voce			
PY11.1.5	Differentiate shivering and non shivering thermogenesis.	K	KH	Y	Lecture	Written/Viva voce			
PY11.2	**Describe and discuss adaptation to altered temperature (heat and cold)**	K	KH	Y	Lecture	Written/Viva voce			
PY11.2.1	Discuss the effect of acute and long term heat exposure on body.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY11.2.2	List and describe the physiological changes that occur as a result of acclimatization to heat.	K	KH	Y	Lecture	Written/Viva voce			
PY11.2.3	Discuss the effect of acute and long term cold exposure on body.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY11.2.4	Discuss the thermoregulatory adaptation response of body on cold.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY11.3	**Describe and discuss mechanism of fever, cold injuries and heat stroke.**	K	KH	Y	Lecture	Written/Viva voce			
PY11.3.1	Define fever	K	KH	Y	Lecture	Written/Viva voce			
PY11.3.2	Discuss the pathophysiology of fever.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY11.3.3	Define heat cramps,heat exhaustion and stroke.	K	KH	Y	Lecture	Written/Viva voce			
PY11.3.4	Discuss the cold injuries of body.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY11.3.5	Define malignant hyperthermia.	K	KH	Y	Lecture	Written/Viva voce			

		K	KH	Y	Lecture	Written/Viva voce			
PY11.4	**Describe and discuss cardio-respiratory and metabolic adjustments during exercise; physical training effects.**	K	KH	Y	Lecture	Written/Viva voce			
PY11.4.1	Discuss the effects of exercise training on the heart and coronary circulation	K	KH	Y	Lecture	Written/Viva voce			
PY11.4.2	Explain the control mechanisms responsible for the increase in minute ventilation and heart rate that accompany exercise.	K	KH	Y	Lecture	Written/Viva voce			
PY11.4.3	Describe how training alters cardiorespiratory parameters on exercise performance.	K	KH	Y	Lecture	Written/Viva voce			
PY11.4.4	Describe the health benefits of exercise training on the cardiovascular, musculoskeletal,endocrine, immune and nervous systems.	K	KH	Y	Lecture	Written/Viva voce			
PY11.5	**Describe and discuss physiological consequences of sedentary lifestyle.**	K	KH	Y	Lecture	Written/Viva voce			
PY11.5.1	Discuss the consequences of sedentary lifestyle and how they can be managed.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY11.6	**Describe physiology of Infancy**	K	KH	N	Lecture	Written/Viva voce		Pediatrics	
PY11.6.1	Discuss the changes in cardiovascular system that occurs after birth.	K	KH	N	Lecture/SGD	Written/Viva voce			
PY11.6.2	Discuss the changes in respiratory system that occurs after birth.	K	KH	N	Lecture/SGD	Written/Viva voce			
PY11.6.3	Discuss the physiological changes in immune system,blood,GIT and nervous system that occurs after birth.	K	KH	N	Lecture/SGD	Written/Viva voce			
PY11.7	**Describe and discuss physiology of aging; free radicals and antioxidants.**	K	KH	N	Lecture	Written/Viva voce			
PY11.7.1	Define ageing.	K	KH	N	Lecture	Written/Viva voce			
PY11.7.2	Describe the age-related changes in different organ systems.	K	KH	N	Lecture	Written/Viva voce			
PY11.7.3	Discuss the theories of ageing	K	KH	N	Lecture	Written/Viva voce			
PY11.7.4	Discuss the ways of modulation of ageing process.	K	KH	N	Lecture/SGD	Written/Viva voce			
PY11.7.5	Define free radicals.	K	KH	N	Lecture	Written/Viva voce			
PY11.7.6	Discuss how free radicals effect the body.	K	KH	N	Lecture/SGD	Written/Viva voce			
PY11.7.7	Enumerate the various antioxidants.	K	KH	N	Lecture	Written/Viva voce			
PY11.7.8	Discuss the role of antioxidants.	K	KH	N	Lecture/SGD	Written/Viva voce			
PY11.8	**Discuss & compare cardio-respiratory changes in exercise (isometric and isotonic) with that in the resting state and under different environmental conditions (heat and cold)**	K	KH	y	Lecture	Written/Viva voce			
PY11.8.1	Describe the changes in cardiovascular and respiratory parameters in isometric exercise.	K	KH	y	Lecture	Written/Viva voce			
PY11.8.2	Describe the changes in cardiovascular and respiratory parameters in isotonic exercise.	K	KH	y	Lecture	Written/Viva voce			
PY11.8.3	Discuss the effects of exercise training on thermoregulation in warm and hot conditions	K	KH	y	Lecture/SGD	Written/Viva voce			
PY11.9	**Interpret growth charts**	K	KH	N	Lecture	Written/Viva voce		**Peadiatrics**	

PY11.9.1	Discuss the use of growth charts in child development.	K	KH	N	Lecture/SGD	Written/Viva voce			
PY11.9.2	What is Z score.	K	KH	N	Lecture	Written/Viva voce			
PY11.10	**Interpret anthropometric assessment of infants**	K	KH	N	Lecture	Written/Viva voce		Peadiatrics	
PY11.10.1	Enumerate the various parameters for assessing child's growth.	K	KH	N	Lecture	Written/Viva voce			
PY11.10.2	Discuss the significance of anthropometric assessment.	K	KH	N	Lecture/SGD	Written/Viva voce			
PY11.11	**Discuss the concept, criteria for diagnosis of Brain death and its implications.**	K	KH	Y	Lecture	Written/Viva voce			
PY11.11.1	Define brain death.	K	KH	Y	Lecture	Written/Viva voce			
PY11.11.2	Discuss the criteria for diagnosis of brain death.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY11.11.3	Discuss the criteria of management of potential organ donor.	K	KH	Y	Lecture/SGD	Written/Viva voce			
PY11.12	**Discuss the physiological effects of meditation**	K	KH	N	Lecture	Written/Viva voce			
PY11.12.1	Define meditation.	K	KH	N	Lecture	Written/Viva voce			
PY11.12.2	Discuss the types of meditation.	K	KH	N	Lecture/SGD	Written/Viva voce			
PY11.12.3	Discuss the various physiological effects of meditation.	K	KH	N	Lecture/SGD	Written/Viva voce			
PY11.12.4	What are the benefits of meditation.	K	KH	N	Lecture	Written/Viva voce			
PY11.13	**Obtain history and perform general examination in the volunteer /simulated environment**	S	SH	Y	DOAP sessions				
PY11.13.1	Understand the importance of history taking and consent for clinical examination.	K	KH	Y	DOAP sessions				
PY11.13.2	Understand the importance of correct position and adequate exposure	K	KH	Y	DOAP sessions				
PY11.13.3	Expalin the various parameters to be examined during inspection,palption,percussion and auscultation.	K	KH	Y	DOAP sessions				
PY11.13.4	Perform the general examination.	S	P	Y	DOAP sessions				
PY11.14	**Demonstrate Basic Life Support in a simulated environment**	S	SH	Y	DOAP sessions			Anaesthesiology	
PY11.14.1	Discuss the importance of Basic Life Support.	K	KH	Y	DOAP sessions				
PY11.14.2	Perform Basic Life Support in a simulated environment on volunteers.	S	P	Y	DOAP sessions				