

Department of Physiology

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/SH/P	Core Y /N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Intrgration
Topic: General Physiology		Number of competencies: (09)		Number of procedures that require certification(NIL)					
PY1.1	Describe the structure and functions of a mammalian cell	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
Learning Objectives									
PY1.1.1	At the end of the session phase I MBBS student must be able to describe the functional components of mammalian cell correctly	K	K	Y	SDL	MCQ			BIOCHEMISTRY (Sharing Integration)
PY1.1.2	At the end of the session phase I MBBS student must be able to describe the composition of cell membrane correctly	K	K	Y	SDL	MCQ			
PY1.1.3	At the end of the session phase I MBBS student must be able to enumerate the functions of all the components of mammalian cell accurately	K	K	Y	SDL	MCQ			
PY1.1.4	At the end of the session phase I MBBS student must be able to enumerate the functional proteins present in the Cell membrane correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.1.5	At the end of the session phase I MBBS student must be able to decribe the functions of proteins present in the cell membrane correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.1.6	At the end of the session phase I MBBS student must be able to explain how the distrbution of phospholipids & proteins influence the membrane permeability of ions, hydrophilic and hydrophobic compounds correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.2	Describe and discuss the principles of homeostasis	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
Learning Objectives									
PY1.2.1	At the end of the session phase I MBBS student must be able to define hemostasis correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.2.2	At the end of the session phase I MBBS student must be able to explain the concept of extracellular and intracellular fluid correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.2.3	At the end of the session phase I MBBS student must be able to define the term milieui interieus correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.2.4	At the end of the session phase I student must be able to enumerate the factors hemostatically regulated correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			

PY1.2.5	At the end of the session phase I MBBS student must be able to enumerate the organ systems contributing to hemostasis correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.2.6	At the end of the session phase I MBBS student must be able to explain how hemostatic control mechanism work accurately	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.2.7	At the end of the session phase I MBBS student must be able to differentiate between intracellular and etracellular fluid accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.2.8	At the end of the session phase I MBBS student must be able to compare negative & positive mechanism of hemostasis correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY.1.3	Describe intercellular communication	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
Learning Objectives									
PY1.3.1	At the end of the session phase I MBBS student must be able to define intercellualr communication accurately	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.3.2	At the end of the session phase I MBBS student must be able to enumerate the mode of intercellular communication correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.3.3	At the end of the session phase I MBBS student must be able to gap junction as the modeof direct intercellular communication correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.3.4	At the end of the session phase I MBBS student must be able to describe the mechanism of action of chemical messengers accurately	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.3.5	At the end of the session phase I MBBS student must be able to differentiate between paracrine and autocrine communication ccurately	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.3.6	At the end of the session phase I MBBS student must be able to explain how does intercellular communication affect cellular physiology correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.4	Describe apoptosis – programmed cell death	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice		Pathology	
Learning Objectives									
PY1.4.1	At the end of the session phase I MBBS student must be able to define apoptosis correctly	K	K	Y	SDL	Viva voice			
PY1.4.2	At the end of the session phase I MBBS student must be able to discuss the mechanism of apoptosis briefly	K	K	Y	SDL	Viva voice			
PY1.4.3	At the end of the session phase I MBBS student must be able to give the physiological significance of apoptosis correctly	K	KH	Y	Small group dicussion	Viva voice			

PY1.4.4	At the end of the session phase I MBBS student must be able to distinguish between necrosis and apoptosis correctly	K	KH	Y	Small group discussion	Viva voice			
PY1.5	Describe and discuss transport mechanism across cell membrane	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY1.5.1	At the end of the session phase I MBBS student must be able to classify transport mechanism correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY1.5.2	At the end of the session phase I MBBS student must be able to enumerate factors affecting rate of diffusion across cell membrane correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY1.5.3	At the end of the session phase I MBBS student must be able to describe facilitated diffusion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY1.5.4	At the end of the session phase I MBBS student must be able to compare simple diffusion and facilitated diffusion accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY1.5.5	At the end of the session phase I MBBS student must be able to describe primary active transport correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY1.5.6	At the end of the session phase I MBBS student must be able to describe secondary active transport correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY1.5.7	At the end of the session phase I MBBS student must be able to compare active and passive transport processes accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY1.5.8	At the end of the session phase I MBBS student must be able to explain how does Na ⁺ K ⁺ ATPase help in regulation of normal cell volume correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY1.5.9	At the end of the session phase I MBBS student must be able to compare primary active transport and secondary active transport accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY1.5.10	At the end of the session phase I MBBS student must be able to give clinical significance of Na ⁺ K ⁺ ATPase pump correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY1.5.11	At the end of the session phase I MBBS student must be able to differentiate between exocytosis and endocytosis correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY1.6	Describe the fluid compartments of the body, its ionic composition & measurements	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			Biochemistry
Learning Objectives									
PY1.6.1	At the end of the session phase I MBBS student must be able to discuss distribution of total body water correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY1.6.2	At the end of the session phase I MBBS student must be able to enumerate the factors affecting total body water correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

PY1.6.3	At the end of the session phase I MBBS student must be able to discuss constituents of fluid compartments correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.6.4	At the end of the session phase I MBBS student must be able to decribe the distribution of ions across the cell membrane at rest correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.6.5	At the end of the session phase I MBBS student must be able to compare the ionic composition of ICF & ECF accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.6.6	At the end of the session phase I MBBS student must be able to give the physiological significance of distribution of ions across the cell membrane at rest correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.6.7	At the end of the session phase I MBBS student must be able to discuss the principle of measurement of body fluid volume correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.7	Describe the concept of pH & Buffer systems in the body	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			Biochemistry
Learning Objectives									
PY1.7.1	At the end of the session phase I MBBS student must be able to define ph along its normal range correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.7.2	At the end of the session phase I MBBS student must be able to discuss the relationship of H ⁺ ions with Ph Correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.7.3	At the end of the session phase I MBBS student must be able to define buffer correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			BIOCHEMISTRY
PY1.7.4	At the end of the session phase I MBBS student must be able to describe the various buffer systems of the body correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.7.5	At the end of the session phase I MBBS student must be able to discuss the role of buffer in acid base balace correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.7.6	At the end of the session phase I MBBS student must be able to calculate the ph of the buffer accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.7.7	At the end of the session phase I MBBS student must be able to explain how the equation predict buffering capacity of a given buffer system correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.8	Describe and discuss the molecular basis of resting membrane potential and action potential in excitable tissue	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
Learning Objectives									
PY1.8.1	At the end of the session phase I MBBS student must be able to define RMP along with its normal value in different excitable tissues accurately	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			

PY1.8.2	At the end of the session phase I MBBS student must be able to describe the generation of RMP correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.8.3	At the end of the session phase I MBBS student must be able to explain the physiological basis of potassium ion contributing maximum to the generation of RMP correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.8.4	At the end of the session phase I MBBS student must be able to describe the maintainence of RMP correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.8.5	At the end of the session phase I MBBS student must be able to define Action potential correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.8.6	At the end of the session phase I MBBS student must be able to decribe the gating of ions correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.8.7	At the end of the session phase I MBBS student must be able to discuss the phases of action potential correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.8.8	At the end of the session phase I MBBS student must be able to decribe the roles of voltage gated channels in each phase of action potential correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.8.9	At the end of the session phase I MBBS student must be able to describe he properties of action potential correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.8.10	At the end of the session phase I MBBS student must be able to differentiate between the conduction of AP in myelinated and non myelinated neuron correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.8.11	At the end of the session phase I MBBS student must be able to calculate the membrane potential by using Goldman- Hodgkin Katz equation correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.8.12	At the end of the session phase I MBBS student must be able to predict the effect of increase or decrease permeability of K, Na and CL ions on membrane potential correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY1.8.13	At the end of the session phase I MBBS student must be able to explain the physiological basis of effect of calcium deficit on sodium ion permeability correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
Topic: Haematology Number of competencies: (13) Number of procedures that require certification: (NIL)									
Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/SH/P	Core Y /N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Intrgration
PY2.1	Describe the composition and functions of blood components	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
Learning Objectives									

PY2.1.1	At the end of the session phase I MBBS student must be able to describe the components of blood along with its normal values accurately	K	K	Y	SLD	MCQ/Viva voice			
PY2.1.2	At the end of the session phase I MBBS student must be able to memorize the normal values of all the components of blood correctly	K	K	Y	SLD	MCQ/Viva voice			
PY2.1.3	At the end of the session phase I MBBS student must be able to identify variations in the composition of blood correctly	K	KH	Y	Lecture, Small group dicussion	MCQ/Viva voice			
PY2.2	Discuss the origin, forms, variations and functions of plasma proteins	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			Biochemistry
Learning Objectives									
PY2.2.1	At the end of the session phase I MBBS student must be able to describe plasma proteins correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			BIOCHEMISTRY
PY2.2.2	At the end of the session phase I MBBS student must be able to memorize the normal values of different types of plasma proteins correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.2.3	At the end of the session phase I MBBS student must be able to explain the role of plasma proteins in fluid exchange across capillary correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.2.4	At the end of the session phase I MBBS student must be able to explain the role of plasma proteins in viscosity of blood accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.2.5	At the end of the session phase I MBBS student must be able to explain correctly the mechanism of oedema when the plasma proteins are reduced	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.3	Describe and discuss the synthesis and functions of Haemoglobin and explain its breakdown. Describe variants of haemoglobin	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			Biochemistry
Learning Objectives									
PY2.3.1	At the end of the session phase I MBBS student must be able to describe the biosynthesis of haemoglobin accurately	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			BIOCHEMISTRY
PY2.3.2	At the end of the session phase I MBBS student must be able to enumerate the functions of haemoglobin correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.3.3	At the end of the session phase I MBBS student must be able to describe the types of Hemoglobin accurately	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.3.4	At the end of the session phase I MBBS student must be able to enumerate the different variants of haemoglobin accurately	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			

PY2.3.5	At the end of the session phase I MBBS student must be able to explain the transport of oxygen function of Hb in detail correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.3.6	At the end of the session phase I MBBS student must be able to explain the catabolism of Hb in detail correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			BIOCHEMISTRY
PY2.3.7	At the end of the session phase I MBBS student must be able to memorize the normal values of all products of heme metabolism precisely	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.3.8	At the end of the session phase I MBBS student must be able to differentiate between foetal and adult hemoglobin precisely	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.3.9	At the end of the session phase I MBBS student must be able to explain the physiological basis of clinical features associated with decrease hemoglobin accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.4	Describe RBC formation (erythropoiesis & its regulation) and its functions	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
Learning Objectives									
PY2.4.1	At the end of the session phase I MBBS student must be able to describe the maturation sequence in the development of erythroblasts to mature erythrocytes correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.4.2	At the end of the session phase I MBBS student must be able to discuss the the factors regulating erythropoiesis correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.4.3	At the end of the session phase I MBBS student must be able to describe the site of production of erythropoietin correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.4.4	At the end of the session phase I MBBS student must be able to describe the stimulus for the synthesis of erythropoietin correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.4.5	At the end of the session phase I MBBS student must be able to describe the physiological basis of increase RBC Count in newborn accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.4.6	At the end of the session phase I students must know an index of erythropoiesis	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5	Describe different types of anaemias & Jaundice	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice		Pathology	Biochemistry
Learning Objectives									
PY2.5.1	At the end of the session phase I MBBS student must be able to give WHO defination of anemia precisely	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.2	At the end of the session phase I MBBS student must be able to give the typical haemoglobin levels that define anemias in children, adolescents and adults accurately	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			

PY2.5.3	At the end of the session phase I MBBS student must be able to classify anemia according to its etiology correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.4	At the end of the session phase I MBBS student must be able to classify anemia according to its lab investigations correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.5	At the end of the session phase I MBBS student must be able to give the physiological basis of signs and symptoms of anemia accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.6	At the end of the session phase I MBBS student must be able to identify structural red cell abnormalities on a peripheral blood smear accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.7	At the end of the session phase I MBBS student must be able to describe iron metabolism correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.8	At the end of the session phase I MBBS student must be able to describe Iron deficiency anemia correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.9	At the end of the session phase I MBBS student must be able to list the appropriate laboratory investigations suggested for IDA accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.10	At the end of the session phase I MBBS student must be able to describe megaloblastic anemia accurately	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.11	At the end of the session phase I MBBS student must be able to explain physiological basis of signs & symptoms of megaloblastic anemia	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.12	At the end of the session phase I MBBS student must be able to differentiate between Vit B12 & folate deficiency accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.13	At the end of the session phase I MBBS student must be able to interpret the complete blood count correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.14	At the end of the session phase I MBBS student must be able to define jaundice correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.15	At the end of the session phase I MBBS student must be able to explain the pathophysiology jaundice correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.16	At the end of the session phase I MBBS student must be able to list the types of jaundice correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.17	At the end of the session phase I MBBS student must be able to describe prehepatic jaundice in relevance to its definition and causes correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			

PY2.5.18	At the end of the session phase I MBBS student must be able to describe hepatic jaundice in relevance to its definition and causes correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.19	At the end of the session phase I MBBS student must be able to describe posthepatic jaundice in relevance to its definition and causes correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.20	At the end of the session phase I MBBS student must be able to list the signs and symptoms of jaundice correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.21	At the end of the session phase I MBBS student must be able to list the sites to be examined for jaundice accurately	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.22	At the end of the session phase I MBBS student must be able to memorize the normal values of all the components of bilirubin metabolism correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.23	At the end of the session phase I MBBS student must be able to identify the types of jaundice on the basis of lab investigations correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.5.24	At the end of the session phase I MBBS student must be able to explain the physiological basis of all the findings of different types of jaundice correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.6	Describe WBC formation (granulopoiesis) and its regulation	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
Learning Objectives									
PY2.6.1	At the end of the session phase I MBBS student must be able to classify WBC correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.6.2	At the end of the session phase I MBBS student must be able to discuss the steps of granulopoiesis correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.6.3	At the end of the session phase I MBBS student must be able to enumerate the factors affecting granulopoiesis accurately	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.6.4	At the end of the session phase I MBBS student must be able to identify any variations in the given bone marrow sample correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.7	Describe the formation of platelets, functions and variations	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
Learning Objectives									
PY2.7.1	At the end of the session phase I MBBS student must be able to discuss thrombopoiesis correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.7.2	At the end of the session phase I MBBS student must be able to memorize the normal counts of platelets correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			

PY2.7.3	At the end of the session phase I MBBS student must be able to explain the role of platelets in hemostasis correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.7.4	At the end of the session phase I MBBS student must be able to identify the variations in the given platelet count accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.7.5	At the end of the session phase I MBBS student must be able to explain the physiological basis of clinical features associated with decrease platelet count accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.7.6	At the end of the session phase I MBBS student must be able to give the physiological basis of use of antiplatelet drugs correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.8	Describe the physiological basis of haemostasis and anticoagulants. Describe bleeding and clotting disorders (Hemophilia & Purpura)	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			PATHOLOGY
Learning Objectives									
PY2.8.1	At the end of the session phase I MBBS student must be able to describe the mechanism of hemostasis correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.8.2	At the end of the session phase I MBBS student must be able to know the pathways for blood coagulation (the intrinsic, extrinsic, and common pathways) that lead to the formation of fibrin correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.8.3	At the end of the session phase I MBBS student must be able to know what events trigger coagulation accurately	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.8.4	At the end of the session phase I MBBS student must be able to explain why the activation of clotting cascade does not coagulate all the blood in the body correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.8.5	At the end of the session phase I MBBS student must be able to contrast intrinsic and extrinsic mechanism of coagulation accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.8.6	At the end of the session phase I MBBS student must be able to identify which coagulation factors are dependent on Vitamin K accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.8.7	At the end of the session phase I MBBS student must be able to explain how Vitamin K modifies these coagulation factors correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.8.8	At the end of the session phase I MBBS student must be able to explain the action of factor XII correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.8.9	At the end of the session phase I MBBS student must be able to identify the role of calcium in hemostasis correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			

PY2.8.10	At the end of the session phase I MBBS student must be able to explain (or diagram) how activated protein C and antithrombin act as inhibitors of coagulation correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.8.11	At the end of the session phase I MBBS student must be able to give the physiological basis of use of anticoagulants correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.8.12	At the end of the session phase I MBBS student must be able to classify various haemorrhagic disorders accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.8.13	At the end of the session phase I MBBS student must be able to give the physiological basis of diagnosis of haemorrhagic disorders correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.9	Describe different blood groups and discuss the clinical importance of blood grouping, blood banking and transfusion	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice		Pathology	
Learning Objectives									
PY2.9.1	At the end of the session phase I MBBS student must be able to define hemostasis correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.9.2	At the end of the session phase I MBBS student must be able to know the basis of blood type classification into ABO blood types correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.9.3	At the end of the session phase I MBBS student must be able to know the basis of blood type classification into Rh blood types correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.9.4	At the end of the session phase I MBBS student must be able to describe incompatibilities in ABO systems accurately	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.9.5	At the end of the session phase I MBBS student must be able to identify which blood groups maybe safely transfused into patients with different ABO types accurately	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.9.6	At the end of the session phase I MBBS student must be able to compare and contrast ABO and Rh blood groups precisely	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.9.7	At the end of the session phase I MBBS student must be able to describe incompatibilities in Rh systems accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.9.8	At the end of the session phase I MBBS student must be able to compare the first pregnancy with a Rh+ child with later pregnancies in an Rh- mother precisely	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.9.9	At the end of the session phase I MBBS student must be able to indicate what kind of blood is given in an emergency situation accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			

PY2.9.10	At the end of the session phase I MBBS student must be able to list three essential steps in blood compatibility testing correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.10	Define and classify different types of immunity. Describe the development of immunity and its regulation	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
Learning Objectives									
PY2.10.1	At the end of the session phase I MBBS student must be able to enumerate the major organs involved in immune system correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.10.2	At the end of the session phase I MBBS student must be able to classify immunity correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.10.3	At the end of the session phase I MBBS student must be able to list the components of natural defence system along with examples of each correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.10.4	At the end of the session phase I MBBS student must be able to explain the antibodies with respect to origin an types correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.10.5	At the end of the session phase I MBBS student must be able to explain how T cells contribute to cell mediated immune response correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.10.6	At the end of the session phase I MBBS student must be able to explain briefly the important aspect of memory as related to the acquired immune response correctly	K	K	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.10.7	At the end of the session phase I MBBS student must be able to compare natural & acquired immune system accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.10.8	At the end of the session phase I MBBS student must be able to compare the two components of acquired immune system accurately	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.10.9	At the end of the session phase I MBBS student must be able to explain briefly the immune system dysfunction correctly	K	KH	Y	Lecture, Small group dicussion	Written/Viva voice			
PY2.11	Estimate Hb, RBC, TLC, RBC indices, DLC, Blood groups, BT/CT	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice		Pathology	
Learning Objectives									
PY2.11.1	At the end of the session phase I MBBS student must be able to memorize normal values of Hb in different age groups & sexes precisely	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.2	At the end of the session phase I MBBS student must be able to explain the relevance of estimation of Hb correctly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.3	At the end of the session phase I MBBS student must be able to explain the principle of Hb estimation correctly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			

PY2.11.4	At the end of the session phase I MBBS student must be able to demonstrate the Hb estimation by Sahli's method by taking 3 readings on the same test correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.5	At the end of the session phase I MBBS student must be able to Compound Microscope	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.6	At the end of the session phase I MBBS student must be able to hemocytometry	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.7	At the end of the session phase I MBBS student must be able to memorize normal values of RBC Count precisely	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.8	At the end of the session phase I MBBS student must be able to explain the relevance of doing RBC Count	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.9	At the end of the session phase I MBBS student must be able to explain the principle of RBC Count correctly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.10	At the end of the session phase I MBBS student must be able to demonstrate RBC Count meticulously	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.11	At the end of the session phase I MBBS student must be able to memorize normal values of TLC precisely	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.12	At the end of the session phase I MBBS student must be able to explain the importance of doing TLC in a clinical setting & practical physiology correctly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.13	At the end of the session phase I MBBS student must be able to explain the principle of doing TLC correctly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.14	At the end of the session phase I MBBS student must be able to demonstrate TLC meticulously	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.15	At the end of the session phase I MBBS student must be able to enumerate the various RBC indices correctly	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.16	At the end of the session phase I MBBS student must be able to Explain the clinical significance of calculating RBC indices accurately	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.17	At the end of the session phase I MBBS student must be able to calculate the RBC indices on the given problem correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.18	At the end of the session phase I MBBS student must be able to explain the functions of all the components of Leishman's stain accurately	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.19	At the end of the session phase I MBBS student must be able to explain the relevance of DLC orrectly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			

PY2.11.20	At the end of the session phase I MBBS student must be able to demonstrate DLC meticulously	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.21	At the end of the session phase I MBBS student must be able to identifying various leucocyte in the well stained smear	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.22	At the end of the session phase I MBBS student must be able to describe Landsteiner's law precisely	S	K						
PY2.11.23	At the end of the session phase I MBBS student must be able to describe the clinical significance of blood grouping briefly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.24	At the end of the session phase I MBBS student must be able to determine blood grouping of own blood by using commercially available antisera keeping in mind all the precautions	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.25	At the end of the session phase I MBBS student must be able to define bleeding time correctly along with its normal values	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.26	At the end of the session phase I MBBS student must be able to define clotting time correctly along with its normal values	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.27	At the end of the session phase I MBBS student must be able to enumerate factors on which clotting time depends correctly	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.28	At the end of the session phase I MBBS student must be able to explain the clinical significance of determining BT &CT correctly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.29	At the end of the session phase I MBBS student must be able to explain the difference between BT &CT	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.11.30	At the end of the session phase I MBBS student must be able to demonstrate the bleeding time and clotting time keeping the time of puncture of the finger as zero time correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY2.12	Describe test for ESR, Osmotic fragility, Hematocrit. Note the findings and interpret the test results etc	K	KH	Y	Demonstration	Written/Viva voice		Pathology	
Learning Objectives									
PY2.12.1	At the end of the session phase I MBBS student must be able to define ESR along with its normal values accurately	K	K	Y	Demonstration	Written/Viva voice			
PY2.12.2	At the end of the session phase I MBBS student must be able to enumerate the methods of determining ESR accurately	K	K	Y	Demonstration	Written/Viva voice			
PY2.12.3	At the end of the session phase I MBBS student must be able to explain the principle of determining ESR accurately	K	K	Y	Demonstration	Written/Viva voice			

PY2.12.4	At the end of the session phase I MBBS student must be able to enumerate the factors affecting ESR accurately	K	K	Y	Demonstration	Written/Viva voice			
PY2.12.5	At the end of the session phase I MBBS student must be able to explain the clinical significance of ESR correctly	K	KH	Y	Demonstration	Written/Viva voice			
PY2.12.6	At the end of the session phase I MBBS student must be able to define osmotic fragility of red cell along with its normal values correctly	K	K	Y	Demonstration	Written/Viva voice			
PY2.12.7	At the end of the session phase I MBBS student must be able to explain principle of determination of osmotic fragility of red cell correctly	K	K	Y	Demonstration	Written/Viva voice			
PY2.12.8	At the end of the session phase I MBBS student must be able to compare the effect of hypertonic and hypotonic saline on red cell correctly	K	KH	Y	Demonstration	Written/Viva voice			
PY2.12.9	At the end of the session phase I MBBS student must be able to explain the clinical significance of doing fragility test briefly	K	KH	Y	Demonstration	Written/Viva voice			
PY2.12.10	At the end of the session phase I MBBS student must be able to define hematocrit correctly	K	K	Y	Demonstration	Written/Viva voice			
PY2.12.11	At the end of the session phase I MBBS student must be able to explain the relevance of measuring hematocrit correctly	K	KH	Y	Demonstration	Written/Viva voice			
PY2.13	Describe steps for reticulocyte and platelet count	K	KH	Y	Demonstration sessions	Written/Viva voice		Pathology	
Learning Objectives									
PY2.13.1	At the end of the session phase I MBBS student must be able to explain the principle of determination of Platelet count correctly	K	K	Y	Demonstration sessions	Written/Viva voice			
PY2.13.2	At the end of the session phase I MBBS student must be able to enumerate the steps of measuring Platelet count correctly	K	K	Y	Demonstration sessions	Written/Viva voice			
PY2.13.3	At the end of the session phase I MBBS student must be able to give the clinical significance of doing the platelet count	K	KH	Y	Demonstration sessions	Written/Viva voice			
PY2.13.4	At the end of the session phase I MBBS student must be able to interpret the variations in platelet count accurately	K	KH	Y	Demonstration sessions	Written/Viva voice			
PY2.13.5	At the end of the session phase I MBBS student must be able to explain the principle of determination of reticulocyte count correctly	K	K	Y	Demonstration sessions	Written/Viva voice			
PY2.13.6	At the end of the session phase I MBBS student must be able to enumerate the steps of measuring reticulocyte count correctly	K	K	Y	Demonstration sessions	Written/Viva voice			

PY2.13.7	At the end of the session phase I MBBS student must be able to indicate the clinical significance of doing the reticulocyte count	K	KH	Y	Demonstration sessions	Written/Viva voice			
Topic: Nerve and Muscle Physiology Number of competencies: (18) Number of procedures that require certification: (NIL)									
Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/SH/P	Core Y /N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Intrgration
PY3.1	Describe the structure and functions of a neuron and neuroglia; Discuss Nerve Growth Factor & other growth factors/cytokines	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			Human Anatomy
Learning Objectives									
PY3.1.1	At the end of session phase I MBBS student must be able to decribe the structure of neuron correctly	K	K	Y	Seminar	Written/Viva voice			Anatomy
PY3.1.2	At the end of session phase I MBBS student must be able to explain the functions of neuron correctly	K	K	Y	Seminar	Written/Viva voice			
PY3.1.3	At the end of session phase I MBBS student must be able to describe the types of neuroglia correctly	K	K	Y	Seminar	Written/Viva voice			Anatomy
PY3.1.4	At the end of session phase I MBBS student must be able to explain the functions of neuroglia correctly	K	K	Y	Seminar	Written/Viva voice			
PY3.1.5	At the end of session phase I MBBS student must be able to define Nerve growth factors correctly	K	K	Y	Seminar	Written/Viva voice			
PY3.1.6	At the end of session phase I MBBS student must be able to enumerate nerve growth factors correctly	K	K	Y	Seminar	Written/Viva voice			
PY3.1.7	At the end of session phase I MBBS student must be able to enumerate cytokines correctly	K	K	Y	Seminar	Written/Viva voice			
PY3.1.8	At the end of session phase I MBBS student must be able to physiological basis of use of NGF in the Nerve damage correctly	K	KH	Y	Seminar	Written/Viva voice			
PY3.2	Describe the types, functions & properties of nerve fibers	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY3.2.1	At the end of session phase I MBBS student must be able to classify nerve fibres correctly	K	K	Y	Lecture	Written			
PY3.2.2	At the end of session phase I MBBS student must be able to describe the functions of nerve fibres correctly	K	K	Y	Lecture	Written			
PY3.2.3	At the end of session phase I MBBS student must be able to explain the electrical property of neuron correctly	K	K	Y	Lecture	Written			
PY3.2.4	At the end of session phase I MBBS student must be able to describe ionic basis of Action potential correctly	K	K	Y	Lecture	Written			

PY3.2.5	At the end of session phase I MBBS student must be able to distinguish the effect of hyperkalemia, hypercalcemia and hypoxia on Action potential accurately	K	K	Y	Lecture	Written/Viva voice			
PY3.2.6	At the end of session phase I student must be able to describe refractory period in respect to definition and types accurately	K	K	Y	Lecture	Written/Viva voice			
PY3.2.9	At the end of session phase I student must be able to to define All or none law correctly	K	K	Y	Lecture	Written/Viva voice			
PY3.2.10	At the end of session phase I MBBS student must be able to list the Ectable tissues that follow All or none law correctly	K	K	Y	Lecture	Written/Viva voice			
PY3.2.11	At the end of session phase I MBBS student must be able to describe accomadation in respect to definition and mechanism correctly	K	K	Y	Lecture	Written/Viva voice			
PY3.2.12	At the end of session phase I MBBS student must be able to explain conduction of nerve impulse through unmyelinated nerve fibres correctly	K	K	Y	Lecture	Written/Viva voice			
PY3.2.13	At the end of session phase I MBBS student must be able to explain conduction of nerve impulse through myelinated nerve fibres correctly	K	K	Y	Lecture	Written/Viva voice			
PY3.2.14	At the end of session phase I MBBS student must be able to compare the conduction in myelinated nerve and unmyelinated nerve correctly	K	KH	Y	Lecture	Written/Viva voice			
PY3.2.15	At the end of session phase I MBBS student must be able to distinguish between Absolute & relative refractory periods accurately	K	KH	Y	Lecture	Written/Viva voice			
PY3.2.16	At the end of session phase I MBBS student must be able to describe physiological importance of refractory periods correctly	K	KH	Y	Lecture	Written/Viva voice			
PY3.2.17	At the end of session phase I MBBS student must be able to list types of recording of action potential correctly	K	KH	Y	Lecture	Written/Viva voice			
PY3.3	Describe the degeneration and regeneration in peripheral nerves	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		General Medicine	
Learning Objectives									
PY3.3.1	At the end of session phase I MBBS student must be able to list the causes of degeneration in peripheral nerve correctly	K	KH	Y	Lecture	Viva voice			
PY3.3.2	At the end of session phase I MBBS student must be able to list the grades of nerve injury correctly	K	KH	Y	Lecture	Viva voice			
PY3.3.3	At the end of session phase I MBBS student must be able to classify types of degenerative changes in peripheral nerve correctly	K	KH	Y	Lecture	Written			
PY3.3.4	At the end of session phase I MBBS student must be able to describe regeneration in peripheral nerve correctly	K	KH	Y	Lecture	Written			

PY3.3.5	At the end of session phase I MBBS student must be able to describe types of degenerative changes in peripheral nerve correctly	K	KH	Y	Lecture	Written			
PY3.4	Describe the structure of neuro-muscular junction and transmission of impulses	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		Anaesthesiology	
Learning Objectives									
PY3.4.1	At the end of session phase I MBBS student must be able to explain the structure of neuromuscular junction with well labelled diagram accurately	K	K	Y	lecture , small group discussion	Written/Viva voice			
PY3.4.2	At the end of session phase I MBBS student must be able to explain mechanism of transmission across neuromuscular junction correctly in flowchart or diagram	K	K	Y	lecture , small group discussion	Written/Viva voice			
PY3.4.3	At the end of session phase I MBBS student must be able to explain the physiological importance of enzymes present in neuromuscular junction correctly	K	KH	Y	lecture , small group discussion	Written/Viva voice			
PY3.4.4	At the end of session phase I MBBS student must be able to label the given diagram of neuromuscular junction correctly	K	KH	Y	lecture , small group discussion	Written/Viva voice			
PY3.5	Discuss the action of neuro-muscular blocking agents	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		Anaesthesiology, Pharmacology	
Learning Objectives									
PY3.5.1	At the end of session phase I MBBS student must be able to define neuromuscular blocking agents correctly	K	K	Y	lecture , small group discussion	Written/Viva voice			
PY3.5.2	At the end of session phase I MBBS student must be able to classify various neuromuscular blocking agents correctly	K	K	Y	lecture , small group discussion	Written/Viva voice			
PY3.5.3	At the end of session phase I MBBS student must be able to explain the mechanism of action of neuromuscular blocking agents correctly	K	KH	Y	lecture , small group discussion	Written/Viva voice			
PY3.5.4	At the end of session phase I MBBS student must be able to differentiate between depolarizing and non depolarizing neuromuscular blocking agents correctly	K	KH	Y	lecture , small group discussion	Written/Viva voice			
PY3.6	Describe the pathophysiology of Myasthenia gravis	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		Pathology	
Learning Objectives									
PY3.6.1	At the end of session phase I MBBS student must be able to define of Myasthenia gravis correctly	K	K	Y	lecture , small group discussion	Written/Viva voice			
PY3.6.2	At the end of session phase I MBBS student must be able to enumerate causes of Myasthenia gravis correctly	K	K	Y	lecture , small group discussion	Written/Viva voice			

PY3.6.3	At the end of session phase I MBBS student must be able to enumerate risk factors of Myasthenia gravis correctly	K	K	Y	lecture , small group discussion	Written/Viva voice			
PY3.6.4	At the end of session phase I MBBS student must be able to explain physiological basis of clinical features of Myasthenia gravis correctly	K	KH	Y	lecture , small group discussion	Written/Viva voice			
PY3.6.5	At the end of session phase I MBBS student must be able to explain physiological basis of clinical features of endorphin test for the diagnosis of Myasthenia gravis correctly	K	KH	Y	lecture , small group discussion	Written/Viva voice			
PY3.6.6	At the end of session phase I MBBS student must be able to discuss physiological basis of treatment of Myasthenia gravis correctly	K	KH	Y	lecture , small group discussion	Written/Viva voice			
PY3.7	Describe the different types of muscle fibres and their structure	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			Human Anatomy
Learning Objectives									
PY 3.7 .1	At the end of the session phase I MBBS student must be able to classify muscle fibres correctly.	K	K	Y	Lecture, Small group discussion	MCQ / Viva Voce			
PY 3.7 .2	At the end of session phase I MBBS student must be able to describe the structural organization of Skeletal Muscle	K	K	Y	Lecture, Small group discussion	MCQ, Viva voce			ANATOMY
PY 3.7 .3	At the end of session phase I student must be able to describe the striations of the skeletal muscle correctly	K	K	Y	Lecture, Small group discussion	MCQ, Viva voce			
PY 3.7 .4	At the end of session phase I MBBS student must be able to explain proteins of skeletal muscles correctly	K	K	Y	Lecture, Small group discussion	MCQ, Viva voce			
PY 3.7 .5	At the end of session phase I MBBS student must be able to describe sarcomere system of skeletal muscle correctly	K	K	Y	Lecture, Small group discussion	MCQ, Viva voce			
PY 3.7 .6	At the end of session phase I MBBS student must be able to explain the types of Skeletal Muscle correctly	K	K	Y	Lecture, Small group discussion	MCQ, Viva voce			
PY 3.7 .7	At the end of session phase I MBBS student must be able to describe the structure of smooth muscle briefly	K	K	Y	Lecture, Small group discussion	MCQ, Viva voce			
PY 3.7 .8	At the end of session phase I MBBS student must be able to describe sarcomere system of smooth muscle briefly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 3.7 .9	At the end of session phase I MBBS student must be able to describe the Types of smooth muscle briefly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 3.7 .10	At the end of session phase I MBBS student must be able to describe the structure of Cardiac muscle briefly								
PY 3.7 .11	At the end of session phase I MBBS student must be able to describe sarcomere system of cardiac muscle briefly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

PY 3.7 .12	At the end of session phase I MBBS student must be able to distinguish between Red skeletal and white skeletal muscle in a tabulated form								
PY 3.7 .13	At the end of session phase I MBBS student must be able to distinguish between multi unit smooth muscle and unitary (single -unit) smooth muscle in a tabulated form.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY 3.7 .14	At the end of session phase I MBBS student must be able to distinguish between the structure of skeletal ,smooth and Cardiac muscle in a tabulated form	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.8	Describe action potential and its properties in different muscle types (skeletal & smooth)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
learning Objectives									
PY3.8.1	At the end of session phase I MBBS student must be able to describe different phases of action potential in skeletal muscle correctly	K	K	Y	lecture , small group discussion	Written , MCQ, Viva voce			
PY3.8.2	At the end of session phase I MBBS student must be able to explain the ionic basis of action potential in skeletal muscle correctly	K	K	Y	lecture , small group discussion	Written , MCQ, Viva voce			
PY3.8.3	At the end of session phase I MBBS student must be able to explain the role of voltahe gated Na+, K+, and Ca2+ channels in each phases of action poential briefly	K	K	Y	lecture , small group discussion	Written , MCQ, Viva voce			
PY3.8.4	At the end of the session phase IMBBS student must be able to Enumerate properties of action potential in skeletal muscle correctly	K	K	Y	lecture , small group discussion	Written , MCQ, Viva voce			
PY3.8.5	At the end of session phase I MBBS student must be able to enumerate properties of action potential in skeletal muscle correctly	K	K	Y	lecture , small group discussion	Written , MCQ, Viva voce			
PY3.8.6	At the end of session phase I MBBS student must be able to explain AP- contraction relationship orrectly	K	KH	Y	lecture , small group discussion	Written , MCQ, Viva voce			
PY3.8.7	At the end of session phase I MBBS student must be able to compare action potential in skeletal muscle and nerve correctly	K	KH	Y	lecture , small group discussion	Written , MCQ, Viva voce			
PY3.8.8	At the end of session phase I MBBS student must be able to Distinguish between an endplate potential and an action potential in skeletal muscle. Accurately	K	KH	Y	lecture , small group discussion	Written , MCQ, Viva voce			
PY3.8.9	At the end of session phase I MBBS student must be able to Predict the consequence on action potential propagation in the early and late stage of demyelination disease correctly	K	KH	N	lecture , small group discussion	Written , MCQ, Viva voce			
PY3.9	Describe the molecular basis of muscle contraction in skeletal and in smooth muscles	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Learning Objectives									
PY3.9.1	At the end of session phase I MBBS student must be able to Describe the sliding filament theory of muscle contraction correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			

PY3.9.2	At the end of session phase I MBBS student must be able to explain accurately how the cross-bridge cycle results in shortening of the muscle	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.9.3	At the end of session phase I MBBS student must be able to explain the role of calcium in contraction of skeletal muscle correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.9.4	At the end of session phase I MBBS student must be able to describe the mechanism of relaxation of muscle correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.9.5	At the end of session phase I MBBS student must be able to describe the sequence of events during muscle contraction when stimulated by a nerve correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.9.6	At the end of session phase I student must be able to explain the mechanism of contraction in smooth muscle correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.9.7	At the end of session phase I student must be able to Comparison of Smooth Muscle Contraction and skeletal muscle contraction accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.10	Describe the mode of muscle contraction (isometric and isotonic)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Learning Objectives									
PY3.10.1	At the end of session phase I MBBS student must be able to Describe isometric contraction with examples	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.10.2	At the end of session phase I MBBS student must be able to Describe isotonic contraction with examples	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.10.3	At the end of session phase I MBBS student must be able to Distinguish between an isometric and isotonic contraction.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.11	Explain energy source and muscle metabolism	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
Learning Objectives									
PY3.11.1	At the end of session phase I MBBS student must be able to enumerate the energy sources for muscle contraction accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			BIOCHEMISTRY
PY3.11.2	At the end of session phase I MBBS student must be able to describe the immediate source of energy(ATP) for muscle contraction accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.11.3	At the end of session phase I MBBS student must be able to describe the source of energy(ATP) for muscle contraction after 3 second of exercise accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			

PY3.11.4	At the end of session phase I MBBS student must be able to explain the physiological basis of continuous muscle contraction even after ATP is exhausted in the first 3 seconds of exercise correctly accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.12	Explain the gradation of muscular activity	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
Learning Objectives									
PY3.12.1	At the end of session phase I MBBS student must be able to define gradation of muscular activity correctly	K	K	Y	Practicals	Practical examination , viva voce			
PY3.12.2	At the end of session phase I MBBS student must be able to enumerate the factors that make the grading of muscular activity possible correctly	K	K	Y	Practicals	Practical examination , viva voce			
PY3.12.3	At the end of session phase I MBBS student must be able student must be able to Define a motor unit correctly	K	K	Y	Practicals	Practical examination , viva voce			
PY3.12.4	At the end of session phase I MBBS student must be able student must be able to describe the order of recruitment of motor units during skeletal muscle contraction of varying strengths.	K	KH	Y	Practicals	Practical examination , viva voce			
PY3.13	Describe muscular dystrophy: myopathies	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	Human Anatomy
Learning Objectives									
PY3.13.1	At the end of session phase I MBBS student must be able to define muscular dystrophies correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.13.2	At the end of session phase I MBBS student must be able to enumerate the types of muscular dystrophies correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.13.3	At the end of session phase I MBBS student must be able to enumerate the causes of muscular dystrophies correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.13.4	At the end of session phase I MBBS student must be able to enumerate the clinical features of MD correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.13.5	At the end of session phase I MBBS student must be able to state the use of EMG in the diagnosis of MD correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.14	Perform Ergography	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voce			
Learning Objectives									
PY 3.14.1	At the end of session phase I MBBS student must be able to define ergography correctly	S	K	Y	DOAP sessions	Practical/OSPE/Viva			
PY 3.14.2	At the end of session phase I MBBS student must be able to discuss the physioclinical significance of ergography correctly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva			
PY 3.14.3	At the end of session phase I MBBS student must be able to demonstrate the effect of venous occlusion on human fatigue correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			

PY 3.14.4	At the end of session phase I MBBS student must be able to demonstrate the effect of arterial occlusion on human fatigue correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY 3.14.5	At the end of session phase I MBBS student must be able to discuss the effect of motivation on physical performance correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva			
PY3.15	Demonstrate effect of mild, moderate and severe exercise and record changes in cardiorespiratory parameters	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
Learning Objectives									
PY13.15.1	At the end of session phase I MBBS student must be able to describe grading of exercise accurately	S	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY13.15.2	At the end of session phase I MBBS student must be able to explain the physioclinical significance of exercise correctly	S	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY13.15.3	At the end of session phase I MBBS student must be able to demonstrate effect of exercise on BP and HR with different grades of exercise in a given volunteer correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY13.15.4	At the end of session phase I MBBS student must be able to demonstrate effect of exercise on respiratory parameters in a given volunteer correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
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 voice			
Learning Objectives									
PY13.16.1	At the end of session phase I MBBS student must be able to describe Harvard step test accurately	S	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY13.16.2	At the end of session phase I MBBS student must be able to explain physioclinical significance of Harvard step test correctly	S	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY13.16.3	At the end of session phase I MBBS student must be able to demonstrate effect of exercise with help of Harvard step test in a given volunteer correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY3.17	Describe Strength-duration curve	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Learning Objectives									
PY3.17.1	At the end of the session phase I MBBS student must be able to explain diagrammatically strength duration curve correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY3.17.2	At the end of the session phase I MBBS student must be able to explain components strength duration curve correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

PY3.17.3	At the end of the session phase I MBBS student must be able to know clinical importance of strength duration curve correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY3.18	Observe with Computer assisted learning (i) amphibian nerve - muscle experiments (ii) amphibian cardiac experiments	S	SH	Y	Demonstration, Computer assisted learning methods	Practical/Viva voice			
Learning Objectives									
PY3.18.1	At the end of the session phase I MBBS student must be able to describe the composition of amphibian ringer accurately	S	K	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.2	At the end of the session phase I MBBS student must be able to discuss the type of sciatic nerve correctly	S	K	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.3	At the end of the session phase I MBBS student must be able to discuss the different types of stimuli used for excitation of a nerve correctly	S	K	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.4	At the end of the session phase I MBBS student must be able to explain the physioclinal importance of studying the ambhibian graph correctly	S	KH	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.5	At the end of the session phase I MBBS student must be able to calculate components of simple muscle twitch accurately	S	SH	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.6	At the end of the session phase I MBBS student must be able to identify the given graph of effect of temperature on simple muscle twitch correctly	S	SH	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.7	At the end of the session phase I MBBS student must be able to calculate the conduction velocity of nerve impulse provided length of nerve 4cm accurately	S	SH	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.8	At the end of the session phase I MBBS student must be able to identify the given graph of effect of load on skeletal muscle contraction correctly	S	SH	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.9	At the end of the session phase I MBBS student must be able to calculate work done in free loaded condition and afterloaded condition correctly	S	SH	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.10	At the end of the session phase I MBBS student must be able to identify the the given graph of effect of increase in strength of stimulus on skeletal muscle contraction correctly	S	SH	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.11	At the end of the session phase I MBBS student must be able to identify thethe given graph of effect of 2 successive stimuli on strength of muscle contraction correctly	S	SH	Y	Computer assisted learning methods	Practical/Viva voice			

PY3.18.12	At the end of the session phase I MBBS student must be able to identify the given graph of effect of increasing frequency of stimulus on skeletal muscle contraction (Genesis of tetanus) correctly	S	SH	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.13	At the end of the session phase I MBBS student must be able to calculate tetanizing frequency precisely	S	SH	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.14	At the end of the session phase I MBBS student must be able to identify the the given graph of effect of continuous stimulus of sciatic nerve on skeletal muscle	S	SH	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.15	At the end of the session phase I MBBS student must be able to calculate the HR of the given graph of cardiogram accurately	S	SH		Computer assisted learning methods	Practical/Viva voice			
PY3.18.16	At the end of the session phase I MBBS student must be able to identify the given graph of effect of temperature on normal cardiogram correctly	S	SH	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.17	At the end of the session phase I MBBS student must be able to identify the given graph of Stannius ligatures in frog's heart accurately	S	SH	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.18	At the end of the session phase I MBBS student must be able to identify the given graph of properties of cardiac muscle correctly	S	SH	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.19	At the end of the session phase I MBBS student must be able to identify the given graph of effect of stimulation of WCL and vagus on the cardiogram correctly	S	SH	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.20	At the end of the session phase I MBBS student must be able to identify the given graph of effect of continuous stimulation of vagal nerve correctly	S	SH	Y	Computer assisted learning methods	Practical/Viva voice			
PY3.18.21	At the end of the session phase I MBBS student must be able to identify the given graph of effect of drugs on frog's heart correctly	S	SH	Y	Computer assisted learning methods	Practical/Viva voice			

Topic: Gastro-intestinal Physiology

Number of competencies: (10)

Number of procedures that require certification: (NIL)

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/SH/P	Core Y /N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Intrgration
PY4.1	Describe the structure and functions of digestive system	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			Human Anatomy
Learning Objectives									
PY4.1.1	At the end of the session phase I MBBS student must be able to describe the structural organisation of digestive system correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			ANATOMY
PY4.1.2	At the end of the session phase I MBBS student must be able to list the innervation of digestive system correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

PY4.1.3	At the end of the session phase I MBBS student must be able to list the functions of digestive system correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2	Describe the composition, mechanism of secretion, functions, and regulation of saliva, gastric, pancreatic, intestinal juices and bile secretion	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			Biochemistry
Learning Objectives									
PY4.2.1	At the end of the session phase I MBBS student must be able to enumerate the composition of saliva correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.2	At the end of the session phase I MBBS student must be able to explain the mechanism of secretion of saliva correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.3	At the end of the session phase I MBBS student must be able to enumerate functions of saliva along with disorders correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.4	At the end of the session phase I MBBS student must be able to enumerate composition of gastric acid secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.5	At the end of the session phase I MBBS student must be able to explain the mechanism of HCl secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.6	At the end of the session phase I MBBS student must be able to explain Neural and humoral regulation of gastric acid secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.7	At the end of the session phase I MBBS student must be able to explain phases of gastric acid secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.8	At the end of the session phase I MBBS student must be able to explain the action of HCl on protein digestion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.9	At the end of the session phase I MBBS student must be able to enumerate composition of pancreatic secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.10	At the end of the session phase I MBBS student must be able to explain mechanism of pancreatic secretion with well labelled diagram correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.11	At the end of the session phase I MBBS student must be able to explain humoral and neural regulation of pancreatic secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.12	At the end of the session phase I MBBS student must be able to explain functions of pancreatic secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.13	At the end of the session phase I MBBS student must be able to describe composition of small intestine secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

PY4.2.14	At the end of the session phase I MBBS student must be able to explain mechanism of small intestine secretion through diagram correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.15	At the end of the session phase I MBBS student must be able to explain neural and humoral regulation of small intestine secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.16	At the end of the session phase I MBBS student must be able to enumerate functions of small intestine secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.17	At the end of the session phase I MBBS student must be able to describe composition of large intestine secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.18	At the end of the session phase I MBBS student must be able to explain mechanism of secretion of large intestine through diagram correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.2.19	At the end of the session phase I MBBS student must be able to explain neural and humoral regulation of intestinal secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.3	Describe GIT movements, regulation and functions. Describe defecation reflex. Explain role of dietary fibre.	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

Learning Objectives

PY4.3.1	At the end of the session phase I MBBS student must be able to describe deglutition with all the phases correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.3.2	At the end of the session phase I MBBS student must be able to describe motor functions of stomach correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.3.3	At the end of the session phase I MBBS student must be able to explain regulation of gastric emptying correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.3.4	At the end of the session phase I MBBS student must be able to classify movements of small intestine correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.3.5	At the end of the session phase I MBBS student must be able to explain propulsive and segmentation contractions correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.3.6	At the end of the session phase I MBBS student must be able to explain functions of both propulsive and segmentation contractions correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.3.7	At the end of the session phase I MBBS student must be able to explain regulation of both propulsive and segmentation contractions correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

PY4.3.8	At the end of the session phase I MBBS student must be able to describe defecation reflex either through diagram or flow chart correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.3.9	At the end of the session phase I MBBS student must be able to describe defecation reflex either through diagram or flow chart correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.3.10	At the end of the session phase I MBBS student must be able to explain physiology of use of Dietary fibres in the treatment of constipation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.3.11	At the end of the session phase I MBBS student must be able to describe Dietary fibres in respect to definition, sources and functions correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.4	Describe the physiology of digestion and absorption of nutrients	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			Biochemistry
Learning Objectives									
PY4.4.1	At the end of the session phase I MBBS student must be able to explain digestion of all the nutrients correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.4.2	At the end of the session phase I MBBS student must be able to explain absorption of all the nutrients correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.4.3	At the end of the session phase I MBBS student must be able to explain the effect of small intestine resection on absorption	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.4.4	At the end of the session phase I MBBS student must be able to explain pathophysiology of malabsorption syndrome along with its features correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.5	Describe the source of GIT hormones, their regulation and functions	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY4.5.1	At the end of the session phase I MBBS student must be able to enumerate sources of various GI hormones correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.5.2	At the end of the session phase I MBBS student must be able to explain the functions of GI hormones	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.5.3	At the end of the session phase I MBBS student must be able to describe the factors regulating the secretion of GI hormones	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.5.4	At the end of the session phase I MBBS student must be able to explain the pathophysiology of gastrinoma correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.5.5	At the end of the session phase I MBBS student must be able to explain the physiological basis of signs & symptoms after resection of small intestine correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

PY4.6	Describe the Gut-Brain Axis	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY4.6.1	At the end of the session phase I MBBS student must be able to explain Enteric nervous system of digestive system through diagram accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.6.2	At the end of the session phase I MBBS student must be able to explain importance of Enteric nervous system correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.6.3	At the end of the session phase I MBBS student must be able to explain Extrinsic nervous system correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.7	Describe & discuss the structure and functions of liver and gall bladder	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			Biochemistry
Learning Objectives									
PY4.7.1	At the end of the session phase I MBBS student must be able to describe the structure of liver in respect to functional lobule and hepatic biliary system correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.7.2	At the end of the session phase I MBBS student must be able to enumerate the functions of liver correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			BIOCHEMISTRY
PY4.7.3	At the end of the session phase I MBBS student must be able to explain the synthetic functions of liver briefly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.7.4	At the end of the session phase I MBBS student must be able to explain the metabolic functions of liver briefly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.7.5	At the end of the session phase I MBBS student must be able to explain the secretory functions of liver in detail correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.7.6	At the end of the session phase I MBBS student must be able to explain the detoxicating functions of liver briefly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.7.7	At the end of the session phase I MBBS student must be able to compare liver bile and gall bladder bile accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.7.8	At the end of the session phase I MBBS student must be able to discuss the physiological basis of sign & symptoms of liver insufficiency or liver damage correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.7.9	At the end of the session phase I MBBS student must be able to discuss the physiological basis of sign & symptoms of cholecystectomy correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

PY4.8	Describe & discuss gastric function tests, pancreatic exocrine function tests & liver function tests	K	KH	Y	Lecture, Small group discussion, Demonstration Esophageal Manometry & endoscopy	Written/Viva voice			Biochemistry
Learning Objectives									
PY4.8.1	At the end of the session phase I MBBS student must be able to enumerate the gastric function test correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			BIOCHEMISTRY
PY4.8.2	At the end of the session phase I MBBS student must be able to enumerate the pancreatic exocrine function test correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.8.3	At the end of the session phase I MBBS student must be able to enumerate the pancreatic liver function test correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			BIOCHEMISTRY
PY4.8.4	At the end of the session phase I MBBS student must be able to discuss the test to be done on patient with peptic ulcer correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.8.5	At the end of the session phase I MBBS student must be able to discuss the test to be done on patient with acute pancreatitis correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.8.6	At the end of the session phase I MBBS student must be able to differentiate between the types of jaundice on the basis of liver function tests accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.8.7	At the end of the session phase I MBBS student must be able to interpret any variation in the given LFTs correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.9	Discuss the physiology aspects of: peptic ulcer, gastroesophageal reflux disease, vomiting, diarrhoea, constipation, Adynamic ileus, Hirschsprung's disease	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		GENERAL MEDICINE	Biochemistry
Learning Objectives									
PY4.9.1	At the end of the session phase I MBBS student must be able to define peptic ulcer along with its types accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.9.2	At the end of the session phase I MBBS student must be able to enumerate the causes of peptic ulcer correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.9.3	At the end of the session phase I MBBS student must be able to explain the physiological basis of signs & symptoms of peptic ulcer correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.9.4	At the end of the session phase I MBBS student must be able to explain the physiological basis for treatment of peptic ulcer correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

PY4.9.5	At the end of the session phase I MBBS student must be able to define gastric oesophageal reflux correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.9.6	At the end of the session phase I MBBS student must be able to explain the physiological basis of signs & symptoms of gastric oesophageal reflux correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.9.7	At the end of the session phase I MBBS student must be able to define vomiting correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.9.8	At the end of the session phase I MBBS student must be able to explain mechanism of vomiting correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.9.9	At the end of the session phase I MBBS student must be able to define diarrhea correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.9.10	At the end of the session phase I MBBS student must be able to explain the physiological basis of management of diarrhoea correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.9.11	At the end of the session phase I MBBS student must be able to define constipation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.9.12	At the end of the session phase I MBBS student must be able to discuss pathophysiology of signs and symptoms of constipation correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.9.13	At the end of the session phase I MBBS student must be able to explain pathophysiology of adynamic ileus correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.9.14	At the end of the session phase I MBBS student must be able to explain physiological basis of clinical features of Hirschprung's disease correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.10	Demonstrate the correct clinical examination of the abdomen in a normal volunteer or simulated environment	S	SH	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
Learning Objectives									
PY4.10(1)	At the end of the session phase I MBBS student must be able to enumerate various steps in the clinical examination of abdomen accurately	S	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.10(2)	At the end of the session phase I MBBS student must be able to explain the clinical relevance of clinical examination of abdomen correctly	S	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY4.10(3)	At the end of the session phase I MBBS student must be able to inspect abdomen with respect to its shape, movement of abdominal wall, presence of any visible pulsation and presence of any prominent veins	S	SH	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			

PY4.10(4)	At the end of the session phase I MBBS student must be able to palpate various organs of the abdomen correctly	S	SH	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
PY4.10(5)	At the end of the session phase I MBBS student must be able to do percussion for fluid thrill and shifting dullness correctly	S	SH	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
PY4.10(6)	At the end of the session phase I MBBS student must be able to auscultate the bowel sounds correctly	S	SH	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
Topic: Cardiovascular Physiology (CVS)		Number of competencies: (16)			Number of procedures that require certification: (03)				
PY5.1	Describe the functional anatomy of heart including chambers, sounds; and Pacemaker tissue and conducting system.	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			Human Anatomy
Learning Objectives									
PY5.1.1	At the end of the session phase I MBBS student must be able to describe the functional anatomy of heart in respect of chambers and heart valves accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			ANATOMY
PY5.1.2	At the end of the session phase I MBBS student must be able to discuss functions of heart chambers accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY5.1.3	At the end of the session phase I MBBS student must be able to list the components of conductive system correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY5.1.4	At the end of the session phase I MBBS student must be able to name the pacemaker correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY5.1.5	At the end of the session phase I MBBS student must be able to discuss the characteristic features of pacemaker accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY5.1.6	At the end of the session phase I MBBS student must be able to label the given diagram of heart in respect to chambers & valves	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY5.1.7	At the end of the session phase I MBBS student must be able to label the given diagram of conducting heart accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY5.2	Describe the properties of cardiac muscle including its morphology, electrical, mechanical and metabolic functions	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY5.2.1	At the end of the session phase I MBBS student must be able to enumerate the properties of cardiac muscle correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY5.2.2	At the end of the session phase I MBBS student must be able to explain action potential in a cardiac muscle in respect to its definition and phases various phases correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

PY5.2.3	At the end of the session phase I MBBS student must be able to explain ionic basis of Action potential correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY5.2.4	At the end of the session phase I MBBS student must be able to define Frank staling's law of heat correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY5.2.5	At the end of the session phase I MBBS student must be able to Draw a well labelled diagram or flowchart of sequence of events that occur in excitation contraction coupling in cardiac muscle accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY5.2.6	At the end of the session phase I MBBS student must be able to define refractory period correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY5.2.7	At the end of the session phase I MBBS student must be able to label the given diagram of Action potential accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY5.2.8	At the end of the session phase I MBBS student must be able to explain physiological sgnificance of long action potential of cardiac muscle and resultant long refractory period with help of diagram neatly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY5.2.9	At the end of the session phase I MBBS student must be able to contrast action potential and refractory period in cardiac muscle and skeletal muscle with help of diagram accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY5.2.10	At the end of the session phase I MBBS student must be able to explain physiological signifiacne of frank starling law of heart w.r.t. preload correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY5.2.11	zAt the end of the session phase I MBBS student must be able to compare and contrast length tension relationship in cardiac muscle & skeletal muscle with the help of well labelled diagram correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY5.3	Discuss the events occurring during the cardiac cycle	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		General Medicine	
Learning Objectives									
PY5.3.1	At the end of the session phase I MBBS student must be able to define cardiac cycle along with its duration accurately	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY5.3.2	At the end of the session phase I MBBS student must be able to enumerate the phases of cardiac cycle along with its duration correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY5.3.3	At the end of the session phase I MBBS student must be able to describe heart sounds produced during cardiac cycle correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			

PY5.3.4	At the end of the session phase I MBBS student must be able to define stroke volume along with its normal range accurately	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY5.3.5	At the end of the session phase I MBBS student must be able to define end diastolic value along with its normal range accurately	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY5.3.6	At the end of the session phase I MBBS student must be able to define end systolic volume along with its normal range accurately	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY5.3.7	At the end of the session phase I MBBS student must be able to draw well labeled diagram showing pressure volume changes in left ventricle and aorta during different phases of cardiac cycle correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.3.8	At the end of the session phase I MBBS student must be able to interpret the different phases of cardiac cycle with respect to electrocardiograph and heart sounds correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.3.9	At the end of the session phase I MBBS student must be able to calculate ejection fraction from the given values of stroke volume and diastolic volume and systolic volume correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.3.10	At the end of the session phase I MBBS student must be able to compare pressure volume changes in left and right ventricle correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.3.11	At the end of the session phase I MBBS student must be able to describe atrial pressure changes occurring during the cardiac cycle correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.3.12	At the end of the session phase I MBBS student must be able to explain the physiological basis of cause cardiac murmurs correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.3.13	At the end of the session phase I MBBS student must be able to interpret the timing of cardiac murmur during stenosis with respect to AV valves and Semilunar valves correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.3.14	At the end of the session phase I MBBS student must be able to interpret the timing of cardiac murmur during insufficiency with respect to AV valves and Semilunar valves correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.3.15	At the end of the session phase I MBBS student must be able to explain the effect of increase heart rate on cardiac cycle correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.4	Describe generation, conduction of cardiac impulse	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			Human Anatomy
Learning Objectives									

PY 5.4.1	At the end of the session phase I MBBS student must be able to enumerate the components of conductive system correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.4.2	At the end of the session phase I MBBS student must be able to describe various phases of action potential in pacemaker tissue correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.4.3	At the end of the session phase I MBBS student must be able to explain the ionic basis of pacemaker potential correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.4.4	At the end of the session phase I MBBS student must be able to define AV nodal delay along with its normal value correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.4.5	At the end of the session phase I MBBS student must be able to diagrammatically explain origin and spread of impulse through the conductive system correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.4.6	At the end of the session phase I MBBS student must be able to explain the functional significance of AV nodal delay during the spread of cardiac impulse correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.4.7	At the end of the session phase I MBBS student must be able to compare and contrast the functional relevance of different conduction velocity of impulse in the conductive system correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.4.8	At the end of the session phase I MBBS student must be able to explain the physiological basis of SA node acting as the pacemaker correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.5	Describe the physiology of electrocardiogram (E.C.G), its applications and the cardiac axis	K	KH	y	Lecture, Small group discussion	Written/Viva voice		General Medicine	
Learning Objectives									
PY5.5.1	At the end of the session phase I MBBS student must be able to define ECG correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY5.5.2	At the end of the session phase I MBBS student must be able to explain the principal of recording ECG correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY5.5.3	At the end of the session phase I MBBS student must be able to enumerate the various bipolar and unipolar leads correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY5.5.4	At the end of the session phase I MBBS student must be able to define eithoven law correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY5.5.5	At the end of the session phase I MBBS student must be able to draw a well label diagram of normal ECG showing various waves , interval and segments correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.5.6	At the end of the session phase I MBBS student must be able to list physioclinical application of recording ECG correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			

PY5.5.7	At the end of the session phase I MBBS student must be able to label the given normal ECG with respect to waves, intervals and segments correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.5.8	At the end of the session phase I MBBS student must be able to explain the clinical significance of PR interval correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.5.9	At the end of the session phase I MBBS student must be able to the clinical significance of RR interval correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.5.10	At the end of the session phase I MBBS student must be able to explain the clinical significance of ST segment correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.5.11	At the end of the session phase I MBBS student must be able to define cardiac axis/ cardiac vector along with normal value correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.5.12	At the end of the session phase I MBBS student must be able to give the physiological significance of mean QRS vector with respect to axis deviation correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.5.13	At the end of the session phase I MBBS student must be able to give the normal range of mean QRS vector correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.5.14	At the end of the session phase I MBBS student must be able to list the steps in calculation of mean QRS vector correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.5.15	At the end of the session phase I MBBS student must be able to calculate and interpret mean QRS vector in the given ECG correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.6	Describe abnormal ECG, arrhythmias, heart block and myocardial Infarction	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		General Medicine	HUMAN ANATOMY
Learning Objectives									
PY 5.6.1	At the end of the session phase I MBBS student must be able to give the normal value of heart rate correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.6.2	At the end of the session phase I MBBS student must be able to define bradycardia correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.6.3	At the end of the session phase I MBBS student must be able to define tachycardia correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.6.4	At the end of the session phase I MBBS student must be able to list various physiological and pathological causes of bradycardia correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.6.5	At the end of the session phase I MBBS student must be able to list various physiological causes of tachycardia correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			

PY 5.6.6	At the end of the session phase I MBBS student must be able to list various pathological causes of tachycardia correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.6.7	At the end of the session phase I MBBS student must be able to list the various abnormalities of ECG with respect to rhythm correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.6.8	At the end of the session phase I MBBS student must be able to enumerate various types of conduction block correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.6.9	At the end of the session phase I MBBS student must be able to explain the pathophysiology of different types of conduction block correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.6.10	At the end of the session phase I MBBS student must be able to explain interpret the given ECG strip with respect to rate abnormality correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.6.11	At the end of the session phase I student must be able to interpret the given ECG strip with respect to rhythm abnormality correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.6.12	At the end of the session phase I MBBS student must be able to describe the ECG changes during MI correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.6.13	At the end of the session phase I MBBS student must be able to define J point correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.6.14	At the end of the session phase I MBBS student must be able to interpret the given ECG changes during myocardial infarction with respect to j point correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.7	Describe and discuss haemodynamics of circulatory system	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY 5.7.1	At the end of the session phase I MBBS student must be able to list the various components of circulatory system correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.3	At the end of the session phase I MBBS student must be able to enumerate the function of pulmonary circulation correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.4	At the end of the session phase I MBBS student must be able to enumerate the functions of systemic circulation correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.11	At the end of the session phase I MBBS student must be able to discuss the innervation of blood vessels correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.12	At the end of the session phase I MBBS student must be able to compare the effect of sympathetic and parasympathetic innervation on the blood vessels correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			

PY 5.7.13	At the end of the session phase I MBBS student must be able to describe relationship between pressure, blood flow and resistance in circulatory system correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.14	At the end of the session phase I MBBS student must be able to explain how Poiseuille's law is altered by changes in radius in the blood vessels correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.15	At the end of the session phase I MBBS student must be able to describe relationship between blood flow, velocity and cross-sectional area in the blood vessel correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.17	At the end of the session phase I MBBS student must be able to enumerate the types of blood flow correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.18	At the end of the session phase I student must be able to list the features of two types of blood flow correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.19	At the end of the session phase I student must be able to enumerate the factor which favor turbulence correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.2	At the end of the session phase I student must be able to diagrammatically explain how blood moves to the circulatory system correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.5	At the end of the session phase I student must be able to compare and contrast the characteristic features of pulmonary and systemic circulation correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.6	At the end of the session phase I MBBS student must be able to distinguish various blood vessels with respect to anatomical character and functions correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.7	At the end of the session phase I MBBS student must be able to discuss the physiological basis of large artery acting as Windkessel vessels correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.8	At the end of the session phase I student must be able to discuss the physiological basis of arterioles as resistance vessels correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.9	At the end of the session phase I MBBS student must be able to discuss the physiological basis of capillary acting as exchange vessels correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.10	At the end of the session phase I MBBS student must be able to explain the physiological basis of venules and veins as blood reservoirs correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.16	At the end of the session phase I student must be able to compare and contrast how parallel and series arrangement of blood vessels affect blood flow correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			

PY 5.7.20	At the end of the session phase I MBBS student must be able to explain the physiological basis of systolic murmur in anemia correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.21	At the end of the session phase I MBBS student must be able to define Laplace law of heart correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.22	At the end of the session phase I MBBS student must be able to explain the physiological basis of why capillaries do not rupture inspite of being so thin correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.23	At the end of the session phase I MBBS student must be able to list the various factors according to Starling hypothesis involved in exchange across capillaries correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.24	At the end of the session phase I MBBS student must be able to define edema correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.25	At the end of the session phase I MBBS student must be able to explain the physiological basis of edema with respect to hypoproteinemia correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.26	At the end of the session phase I MBBS student must be able to list various factors which regulate venous return correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.27	At the end of the session phase I MBBS student must be able to define venous return correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.7.28	At the end of the session phase I MBBS student must be able to compare and contrast the effect of change in posture on venous return correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.8	Describe and discuss local and systemic cardiovascular regulatory mechanisms	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY 5.8.1	At the end of the session phase I MBBS student must be able to list various mechanisms of blood flow control correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.8.2	At the end of the session phase I MBBS student must be able to enumerate the two theories of autoregulation of blood flow correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.8.5	At the end of the session phase I MBBS student must be able to list various chemical substances involved in humoral regulation of blood flow correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.8.6	At the end of the session phase I MBBS student must be able to list the endothelium-derived factor involved in regulation of blood flow correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			

PY 5.8.7	At the end of the session phase I MBBS student must be able to describe the mechanism of action of nitric oxide correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.8.8	At the end of the session phase I MBBS student must be able to explain the mechanism of action of endothelin derived relaxing factor correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.8.3	At the end of the session phase I MBBS student must be able to diagrammatically explain the mechanism of myogenic theory of autoregulation of blood flow correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.8.4	At the end of the session phase I MBBS student must be able to diagrammatically explain the mechanism of metabolic theory of autoregulation of blood flow correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.8.9	At the end of the session phase I MBBS student must be able to compare and contrast the effect of nitric oxide and endothelin derived relaxing factor on blood vessels correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.8.10	At the end of the session phase I MBBS student must be able to explain the physiological basis of nitrates in treatment of angina pectoris correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.9	Describe the factors affecting heart rate, regulation of cardiac output & blood pressure	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY 5.9.1	At the end of the session phase I MBBS student must be able to discuss heart rate correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.2	At the end of the session phase I MBBS student must be able to enumerate the factors which regulate the heart rate correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.3	At the end of the session phase I MBBS student must be able to compare the effect of sympathetic and parasympathetic system on heart rate correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.4	At the end of the session phase I MBBS student must be able to define vagal tone correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.5	At the end of the session phase I MBBS student must be able to explain the physiological significance of vagal tone on resting heart rate correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.6	At the end of the session phase I MBBS student must be able to define cardiac output along with its normal value correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.7	At the end of the session phase I MBBS student must be able to define cardiac index along with its normal value correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			

PY 5.9.8	At the end of the session phase I MBBS student must be able to explain the role of variation in heart rate on cardiac output correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.9	At the end of the session phase I MBBS student must be able to discuss the regulation of cardiac output correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.10	At the end of the session phase I MBBS student must be able to enumerate the methods of measurement of CO correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.11	At the end of the session phase I MBBS student must be able to factors affecting venous return correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.12	At the end of the session phase I MBBS student must be able to distinguish between homometric and heterometric regulation of CO correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.13	At the end of the session phase I MBBS student must be able to define cardiac reserve correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.14	At the end of the session phase I MBBS student must be able to explain physiological significance of cardiac reserve correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.15	At the end of the session phase I MBBS student must be able to enumerate the parts of vasomotor centre correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.16	At the end of the session phase I MBBS student must be able to explain the functions of vasomotor centre correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.17	At the end of the session phase I MBBS student must be able to discuss the effect of autonomic nervous system on heart correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.18	At the end of the session phase I MBBS student must be able to define BP correctly along with its components and normal range accurately	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.19	At the end of the session phase I MBBS student must be able to enumerate the determinants of arterial BP correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.20	At the end of the session phase I MBBS student must be able to list the factors which effect BP correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.21	At the end of the session phase I MBBS student must be able to mechanism of BP regulation correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.22	At the end of the session phase I MBBS student must be able to discuss baroreceptor reflex correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.23	At the end of the session phase I MBBS student must be able to describe chemoreceptor reflex correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			

PY 5.9.24	At the end of the session phase I MBBS student must be able to describe bain bridge reflex correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.25	At the end of the session phase I MBBS student must be able to describe CNS ischaemic response correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.26	At the end of the session phase I MBBS student must be able to describe long term mechanism of regulation of BP correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.27	At the end of the session phase I MBBS student must be able to compare and contrast aortic and carotid baroreceptors correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.28	At the end of the session phase I MBBS student must be able to explain the physiological basis of role of baroreceptor reflex in posture correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.29	At the end of the session phase I MBBS student must be able to explain the physiological basis of role of bain bridge reflex in volume regulation correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.30	At the end of the session phase I MBBS student must be able to explain the physiological basis of bradycardia with increase intracranial pressure correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.31	At the end of the session phase I MBBS student must be able to explain CNS ischemic response as the last ditch correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.32	At the end of the session phase I MBBS student must be able to explain the mechanism of pressure diuresis in regulation of BP correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.9.33	At the end of the session phase I MBBS student must be able to explain the physiological significance of renin- angiotensinogen system correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.10	Describe & discuss regional circulation including microcirculation, lymphatic circulation, coronary, cerebral, capillary, skin, foetal, pulmonary and splanchnic circulation	K	KH	y	Lecture, Small group discussion	Written/Viva voice		General Medicine	
Learning Objectives									
PY 5.10.1	At the end of the session phase I MBBS student must be able to define microcirculation correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.2	At the end of the session phase I MBBS student must be able to describe the functional components of capillary circulation correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.3	At the end of the session phase I MBBS student must be able to fluid across capillaries correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			

PY 5.10.4	At the end of the session phase I MBBS student must be able to predict the effect of change of starling forces on fluid shift accurately	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.5	At the end of the session phase I MBBS student must be able to describe the structural anatomy of lymphatic system correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.6	At the end of the session phase I MBBS student must be able to list the function of lymphatic vessel correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.7	At the end of the session phase I MBBS student must be able to explain the physiological basis of edema due to lymphatic obstruction correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.8	At the end of the session phase I MBBS student must be able to describe the functional components of coronary circulation correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.9	At the end of the session phase I MBBS student must be able to discuss regulation of coronary blood flow correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.10	At the end of the session phase I MBBS student must be able to explain the physiological basis of maximum coronary blood flow occurring during diastolic phase of cardiac cycle correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.11	At the end of the session phase I MBBS student must be able to explain the physiological basis of endocardial layer suffering most damage following myocardial ischaemia correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.12	At the end of the session phase I MBBS student must be able to discuss physiological basis of clinical features of coronary artery disease correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.13	At the end of the session phase I MBBS student must be able to explain the physiological basis of management of myocardial infarction correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.14	At the end of the session phase I MBBS student must be able to discuss formation of CSF correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			Anatomy
PY 5.10.15	At the end of the session phase I MBBS student must be able to discuss circulation of CSF correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			Anatomy
PY 5.10.16	At the end of the session phase I student must be able to define BBB correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.17	At the end of the session phase I MBBS student must be able to enumerate the functions of BBB correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			

PY 5.10.18	At the end of the session phase I MBBS student must be able to regulation of cerebral blood flow correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.19	At the end of the session phase I MBBS student must be able to physioclinical significance of CSF correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.20	At the end of the session phase I MBBS student must be able to enumerate normal physical characteristics of CSF correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.21	At the end of the session phase I MBBS student must be able to discuss the clinical relevance of CSF analysis correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.22	At the end of the session phase I MBBS student must be able to explain the physiological basis of how cerebral edema impairs cerebral blood flow correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.23	At the end of the session phase I MBBS student must be able to explain the physiological basis of use of mannitol in reducing cerebral edema correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.24	At the end of the session phase I MBBS student must be able to discuss the characteristics of pulmonary circulation correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.25	At the end of the session phase I MBBS student must be able to compare the functional significance of the tree zones of pulmonary circulation correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.26	At the end of the session phase I MBBS student must be able to discuss the role of pulmonary circulation correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.27	At the end of the session phase I MBBS student must be able to explain the pathophysiology of pulmonary edema correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.28	At the end of the session phase I MBBS student must be able to describe the organization of cutaneous vessels correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.29	At the end of the session phase I MBBS student must be able to define AV anastomoses correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.30	At the end of the session phase I MBBS student must be able to list the sites of AV anastomoses correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.31	At the end of the session phase I MBBS student must be able to explain the physiological sinificance of AV anastomoses correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.32	At the end of the session phase I MBBS student must be able to functional components of cutaneous circulation correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			

PY 5.10.33	At the end of the session phase I MBBS student must be able to describe regulation of cutaneous circulation correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.34	At the end of the session phase I MBBS student must be able to explain the physiological basis of cutaneous circulation in temperature regulation correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.35	At the end of the session phase I MBBS student must be able to discuss triple response of skin to trauma correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.36	At the end of the session phase I MBBS student must be able to explain the physiological basis of cutaneous circulation in temperature regulation correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.37	At the end of the session phase I MBBS student must be able to list the functional components of splanchnic circulation correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.38	At the end of the session phase I MBBS student must be able to list factors which regulate splanchnic circulation correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.39	At the end of the session phase I MBBS student must be able to discuss physiological significance of counter current exchange in the intestinal villi correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.40	At the end of the session phase I MBBS student must be able to discuss organization of fetoplacental circulation correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice		Anatomy	
PY 5.10.41	At the end of the session phase I MBBS student must be able to describe changes occur in foetal circulation after birth correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY 5.10.42	At the end of the session phase I MBBS student must be able to compare foetal circulation and adult circulation correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.11	Describe the patho-physiology of shock, syncope and heart failure	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY5.11.1	At the end of the session phase I MBBS student must be able to define shock along with classification correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY5.11.2	At the end of the session phase I MBBS student must be able to enumerate causes of shock correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY5.11.3	At the end of the session phase I MBBS student must be able to explain the compensatory mechanism in non progressive/ compensatory shock correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY5.11.4	At the end of the session phase I MBBS student must be able to discuss mechanism of irreversible stage of shock correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			

PY5.11.5	At the end of the session phase I MBBS student must be able to explain the physiological basis of clinical features of compensatory shock correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.11.6	At the end of the session phase I MBBS student must be able to compare and contrast non progressive and progressive shock correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.11.7	At the end of the session phase I MBBS student must be able to explain the physiological basis of management of shock correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.11.8	At the end of the session phase I MBBS student must be able to define syncope correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY5.11.9	At the end of the session phase I MBBS student must be able to enumerate the causes of syncope correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY5.11.10	At the end of the session phase I MBBS student must be able to explain the physiological basis of clinical features of syncope correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.11.11	At the end of the session phase I MBBS student must be able to define cardiac failure correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY5.11.12	At the end of the session phase I MBBS student must be able to classify cardiac failure correctly	K	K	y	Lecture, Small group discussion	Written/Viva voice			
PY5.11.13	At the end of the session phase I MBBS student must be able to discuss the pathophysiology of cardiac failure correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.11.14	At the end of the session phase I MBBS student must be able to compare clinical feature of left and right sided cardiac failure correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
PY5.11.15	At the end of the session phase I MBBS student must be able to explain the physiological basis of management of cardiac failure correctly	K	KH	y	Lecture, Small group discussion	Written/Viva voice			
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 voice	1 each x 3		
Learning Objectives									
PY5.12.1	At the end of the session phase I student must be able to list sites of recording arterial pulse correctly	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.12.2	At the end of the session phase I student must be able to explain the significance of recording arterial pulse correctly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			

PY5.12.3	At the end of the session phase I student must be able to demonstrate examination of radial pulse in a volunteer in an comfortable environment correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice	1		
PY5.12.4	At the end of the session phase I MBBS student must be able to list the methods of recording BP correctly	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.12.5	At the end of the session phase I MBBS student must be able to discuss the clinical significance of recording BP correctly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.12.6	At the end of the session phase I MBBS student must be able to discuss the principle of recording BP correctly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.12.7	At the end of the session phase I MBBS student must be able to demonstrate recording of BP in volunteer at rest correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice	1		
PY5.12.8	At the end of the session phase I MBBS student must be able to enumerate different grades of exercise correctly	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.12.9	At the end of the session phase I MBBS student must be able to discuss physioclinical significance of recording BP with exercise correctly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.12.10	At the end of the session phase I MBBS student must be able to demonstrate effect of exercise on BP with proper instructions to the volunteer correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.12.11	At the end of the session phase I MBBS student must be able to the effect of posture on blood pressure correctly	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.12.12	At the end of the session phase I MBBS student must be able to discuss physioclinical significance of recording BP with change in posture correctly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.12.13	At the end of the session phase I MBBS student must be able to demonstrate effect of change of posture on BP with proper instruction to the volunteer correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice	1		
PY5.13	Record and interpret normal ECG in a volunteer or simulated environment	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice		General Medicine	
Learning Objectives									
PY5.13.1	At the end of the session phase I MBBS student must be able to discuss the principle of recording ECG correctly	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.13.2	At the end of the session phase I MBBS student must be able to describe the lead system correctly	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.13.3	At the end of the session phase I MBBS student must be able to explain ECG paper correctly	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			

PY5.13.4	At the end of the session phase I MBBS student must be able to explain the physiological significance of recording ECG correctly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.13.5	At the end of the session phase I MBBS student must be able to identify the various components of given ECG correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.13.6	At the end of the session phase I MBBS student must be able to calculate heart rate from the given ECG correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.13.7	At the end of the session phase I MBBS student must be able to interpret given ECG correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.14	Observe cardiovascular autonomic function tests in a volunteer or simulated environment	S	SH	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
Learning Objectives									
PY5.14.2	At the end of the session phase I MBBS student must be able to enumerate various sympathetic and parasympathetic autonomic nervous test used to assess autonomic functions correctly	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.14.3	At the end of the session phase I MBBS student must be able to explain physioclinical significance of doing autonomic function test correctly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.14.4	At the end of the session phase I MBBS student must be able to demonstrate various sympathetic and parasympathetic autonomic function test in a volunteer correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
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 voice			
Learning Objectives									
PY5.15.1	At the end of the session phase I MBBS student must be able to describe the headings under which Cardiovascular system is to be examined correctly	S	K	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.15.8	At the end of the session phase I MBBS student must be able to state the clinical relevance of doing CVS examination correctly	S	KH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.15.9	At the end of the session phase I MBBS student must be able to inspect the precordial with respect to shape, cardiac pulsation correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.15.11	At the end of the session phase I MBBS student must be able to palpating apex beat correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
PY5.15.16	At the end of the session phase I MBBS student must be able to auscultate the heart sound correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			

PY5.15.17	At the end of the session phase I MBBS student must be able to do percussion of precordial correctly	S	SH	Y	DOAP sessions	Practical/OSPE/Viva voice			
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 voice		General Medicine	
Learning Objectives									
PY.5.16.1	At the end of the session phase I MBBS student should be able to list the components of pulse wave recorded using finger plethysmography correctly	S	K		DOAP sessions	Practical/OSPE/Viva voice			
PY.5.16.2	At the end of the session phase I MBBS student should be able to state the clinical significance of arterial pulse tracing correctly	S	KH		DOAP sessions	Practical/OSPE/Viva voice			
PY.5.16.3	At the end of the session phase I MBBS student should be able to record arterial pulse using finger plethysmograph correctly	S	SH		DOAP sessions	Practical/OSPE/Viva voice			
PY.5.16.4	At the end of the session phase I MBBS student should be able to label various components of arterial pulse in the given pulse tracing correctly	S	SH		DOAP sessions	Practical/OSPE/Viva voice			

Topic: Respiratory Physiology

Number of competencies: (10)

Number of procedures that require certification: (01)

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/SH/P	Core Y /N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Intrgration
PY6.1	Describe the functional anatomy of respiratory tract	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY 6.1.1	At the end of the session phase I MBBS student must be able to enumerate the functional elements of respiratory system correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.1.2	At the end of the session Phase I MBBS student must be able to describe the physiological elements of upper airways correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.1.3	At the end of the session Phase I MBBS student must be able to describe the functions of upper airways correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.1.4	At the end of the session Phase I MBBS student must be able to describe the physiological elements of lower airways in detail	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.1.5	At the end of the session Phase I MBBS student must be able to describe the physiological importance of lower airways correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.1.6	At the end of the session Phase I MBBS student must be able to label the given diagram of respiratory system correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

PY 6.1.7	At the end of the session Phase I MBBS student must be able to compare conducting zone and respiratory zone correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY6.2	At the end of the session Phase I MBBS student must be able to 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, Small group discussion	Written/Viva voice			
Learning Objectives									
PY 6.2.1	At the end of the session phase I MBBS student should be able to describe the various pressures involved in the mechanics of breathing correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.2	At the end of the session Phase I MBBS student must be able to describe the mechanics of inspiration correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.3	At the end of the session phase I student should be able to describe the mechanics of expiration correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.4	At the end of the session phase I student must be able to describe pressure volume changes during respiration correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.5	At the end of the session phase I student must be able to compare between inspiration and expiration correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.6	At the end of the session Phase I MBBS student must be able to explain correctly the reason of negative intrapleural pressure at rest correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.7	At the end of the session phase I student must be able to explain correctly effect of variation in intrapleural pressure on respiration correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.8	At the end of the session Phase I MBBS student must be able to describe the compliance correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.9	At the end of the session Phase I MBBS student must be able to enumerate factors affecting compliance correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.10	At the end of the session Phase I MBBS student must be able to explain the physiological basis of various diseases affecting compliance correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.11	At the end of the session Phase I MBBS student must be able to discuss alveolar surface tension correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.12	At the end of the session Phase I MBBS student must be able to describe surfactant accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

PY 6.2.13	At the end of the session Phase I MBBS student must be able to enumerate factors affecting surfactant correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.14	At the end of the session Phase I MBBS student must be able to explain the physioclinical significance of surfactant correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.15	At the end of the session phase I student must be able to explain the physiological basis of use of Glucocorticoids in the treatment of IRDS	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.16	At the end of the session Phase I MBBS student must be able to discuss airway resistance accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.17	At the end of the session Phase I MBBS student must be able to explain the physiological basis of high airway resistance during expiration	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.18	At the end of the session Phase I MBBS student must be able to explain the physiological basis of signs & symptoms of asthma correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.19	At the end of the session Phase I MBBS student must be able to describe alveolar ventilation along with its value accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.20	At the end of the session Phase I MBBS student must be able to calculate alveolar ventilation correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.21	At the end of the session Phase I MBBS student must be able to define ventilation perfusion ratio correctly along with its normal value	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.22	At the end of the session Phase I MBBS student must be able to describe factors affecting ventilation perfusion ratio correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.23	At the end of the session Phase I MBBS student must be able to explain the relationship of VP ratio with gas tension correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.24	At the end of the session Phase I MBBS student must be able to discuss diffusion capacity of lung correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.25	At the end of the session Phase I MBBS student must be able to explain physio-clinical significance of diffusion capacity of lung correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.26	At the end of the session Phase I MBBS student must be able to discuss various lung volumes and capacities correctly along with normal value	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

PY 6.2.27	At the end of the session Phase I MBBS student must be able to explain the physioclinical significance of vital capacity	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.28	At the end of the session Phase I MBBS student must be able to explain the physioclinical significance of timed vital capacity	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.29	At the end of the session Phase I MBBS student must be able to explain the physioclinical significance of functional residual capacity capacity	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.2.30	At the end of the session Phase I MBBS student must be able to differentiate between static lung volumes and capacities and dynamic lung volumes and capacities accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY6.3	Describe and discuss the transport of respiratory gases: Oxygen and Carbon dioxide	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY 6.3.1	At the end of the session phase I MBBS student must be able to describe respiratory membrane correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.3.2	At the end of the session phase I MBBS student must be able to enumerate the forms of oxygen transport accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.3.3	At the end of the session phase I MBBS student must be able to describe the amount of oxygen carried by 100ml of blood accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.3.4	At the end of the session phase I MBBS student must be able to memorize the normal measure of oxygen in arterial and venous blood accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.3.5	At the end of the session phase I MBBS student must be able to explain the oxygen dissociation curve accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.3.6	At the end of the session phase I MBBS student must be able to explain the factors shifting the oxygen dissociation curve accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.3.7	At the end of the session phase I MBBS student must be able to explain the physiological significance of sigmoid shape of oxygen dissociation curve accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.3.8	At the end of the session phase I MBBS student must be able to explain the physiological basis of shifting of oxygen dissociation curve to left in stored blood accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

PY 6.3.9	At the end of the session phase I MBBS student must be able to explain the physiological basis of the fact that transfused blood is not as efficient as oxygen delivery as the recipients own blood accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.3.10	At the end of the session phase I MBBS student must be able to explain the physiological basis of shifting of oxygen dissociation curve to right in exercise accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.3.11	At the end of the session phase I MBBS student must be able to describe forms of transport of carbondioxide accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.3.12	At the end of the session phase I MBBS student must be able to describe the amount of carbon dioxide transported by 100ml blood accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.3.13	At the end of the session phase I MBBS student must be able to describe carbon dioxide dissociation curve accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.3.14	At the end of the session phase I MBBS student must be able to describe haldane effect accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.3.15	At the end of the session phase I MBBS student must be able to differentiate between bohrs effects and haldane effect accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.3.16	At the end of the session phase I MBBS student must be able to differentiate between Bohr effects and haldane effect accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY6.4	Describe and discuss the physiology of high altitude and deep sea diving	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
py 6.4.1	At the end of the session phase I MBBS student must be able to define high altitude accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
py 6.4.2	At the end of the session phase I MBBS student must be able to enumerate the barometric pressure and partial pressure of gases at different height accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
py 6.4.3	At the end of the session phase I MBBS student must be able to explain the physiological responses to high altitude accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
py 6.4.4	At the end of the session phase I MBBS student must be able to explain the physiological basis of hyperventilation at high altitude accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

py 6.4.5	At the end of the session phase I MBBS student must be able to explain the physiological basis of physiological polycythemia accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
py 6.4.6	At the end of the session phase I MBBS student must be able to explain the physiological mechanism causing features of pulmonary edema accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
py 6.4.7	At the end of the session phase I MBBS student must be able to explain the importance of study of physiology of high altitude accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
py 6.4.8	At the end of the session phase I MBBS student must be able to describe the relationship of pressure to sea depth accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
py 6.4.9	At the end of the session phase I MBBS student must be able to describe the effects of high pressure on various gases accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
py 6.4.10	At the end of the session phase I MBBS student must be able to explain the physiological basis of clinical features of decompression sickness accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
py 6.4.11	At the end of the session phase I MBBS student must be able to explain the physiological basis of management decompression sickness accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY6.5	Describe and discuss the principles of artificial respiration, oxygen therapy, acclimatization and decompression sickness.	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
py 6.5.1	At the end of the session phase I MBBS student must be able to define artificial respiration accurately along its types	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
py 6.5.2	At the end of the session phase I MBBS student must be able to explain the indication of artificial respiration accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
py 6.5.3	At the end of the session phase I MBBS student must be able to explain the principles of artificial respiration accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
py 6.5.4	At the end of the session phase I MBBS student must be able to describe oxygen therapy accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
py 6.5.5	At the end of the session phase I MBBS student must be able to enumerate the goals of oxygen therapy accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
py 6.5.6	At the end of the session phase I MBBS student must be able to enumerate oxygen delivery system accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

py 6.5.7	At the end of the session phase I MBBS student must be able to enumerate indications of oxygen therapy accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
py 6.5.8	At the end of the session phase I MBBS student must be able to explain the physiological basis of features of oxygen toxicity accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
py 6.5.9	At the end of the session phase I MBBS student must be able to explain the principle of treating decompression sickness with hyperbaric oxygen accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY6.6	Describe and discuss the pathophysiology of dyspnoea, hypoxia, cyanosis asphyxia; drowning, periodic breathing	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY 6.6.1	At the end of the session phase I MBBS student must be able to define dyspnoea accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.2	At the end of the session phase I MBBS student must be able to enumerate the underlying diseases that cause dyspnoea accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.3	At the end of the session phase I MBBS student must be able to explain the physiological basis of dyspnoea in lung diseases accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.4	At the end of the session phase I MBBS student must be able to explain the physiological basis of dyspnoea in heart diseases accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.5	At the end of the session phase I MBBS student must be able to define hypoxia correctly accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.6	At the end of the session phase I MBBS student must be able to enumerate the types of hypoxia accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.7	At the end of the session phase I MBBS student must be able to describe hypoxic hypoxia accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.8	At the end of the session phase I MBBS student must be able to describe anaemic hypoxia accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.9	At the end of the session phase I MBBS student must be able to describe histotoxic hypoxia accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.10	At the end of the session phase I MBBS student must be able to describe stagnant hypoxia accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.11	At the end of the session phase I MBBS student must be able to explain the physiological basis of clinical features associated with hypoxia accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

PY 6.6.12	At the end of the session phase I MBBS student must be able to differentiate the types of hypoxia accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.13	At the end of the session phase I MBBS student must be able to define cyanosis accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.14	At the end of the session phase I MBBS student must be able to describe the mechanism of cyanosis accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.15	At the end of the session phase I MBBS student must be able to enumerate the types of cyanosis accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.16	At the end of the session phase I MBBS student must be able to enumerate the causes of cyanosis accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.17	At the end of the session phase I MBBS student must be able to explain the physiological mechanism of not having cyanosis in anaemia accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.18	At the end of the session phase I MBBS student must be able to explain the physiological mechanism of having cyanosis in polycythemia accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.19	At the end of the session phase I MBBS student must be able to explain the factors affecting the detection of cyanosis accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.20	At the end of the session phase I MBBS student must be able to define asphyxia accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.21	At the end of the session phase I MBBS student must be able to enumerate the types of asphyxia accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.22	At the end of the session phase I MBBS student must be able to enumerate the causes of asphyxia accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.23	At the end of the session phase I MBBS student must be able to explain the physiological basis of clinical features of asphyxia accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.24	At the end of the session phase I MBBS student must be able to define periodic breathing accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.25	At the end of the session phase I MBBS student must be able to enumerate types of periodic breathing accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.6.26	At the end of the session phase I MBBS student must be able to explain the physiological basis of Cheyne-Stokes respiration accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

PY 6.6.27	At the end of the session phase I MBBS student must be able to explain the physiological basis of Biot's breathing accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY6.7	Describe and discuss lung function tests & their clinical significance	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY 6.7.1	At the end of the session phase I MBBS student must be able to classify pulmonary function tests accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.7.2	At the end of the session phase I MBBS student must be able to enumerate bed side pulmonary function tests accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.7.3	At the end of the session phase I MBBS student must be able to enumerate test of ventilatory functions accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.7.4	At the end of the session phase I MBBS student must be able to enumerate the various tests not measured by spirometry accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.7.5	At the end of the session phase I MBBS student must be able to enumerate the various tests measured by spirometry accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.7.6	At the end of the session phase I MBBS student must be able to calculate alveolar ventilation accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.7.7	At the end of the session phase I MBBS student must be able to calculate maximum voluntary ventilation accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.7.8	At the end of the session phase I MBBS student must be able to calculate minute ventilation accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.7.9	At the end of the session phase I MBBS student must be able to explain the physioclinical effect of FEV accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.7.10	At the end of the session phase I MBBS student must be able to explain the physioclinical effect of TVC/FVC Ratio accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.7.11	At the end of the session phase I MBBS student must be able to differentiate obstructive and restrictive lung diseases on the basis of pulmonary function tests correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.7.12	At the end of the session phase I MBBS student must be able to measure dead space accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 6.7.13	At the end of the session phase I MBBS student must be able to explain the physioclinical significance of dead space accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

PY6.8	Demonstrate the correct technique to perform & interpret Spirometry	S	SH	Y	DOAP session	Skill assessment / Viva Voce/ OSPE		RESPIRATORY MEDICINE	
Learning Objectives									
PY 6.8.1	At the end of the session phase I MBBS student must be able to describe spirometry accurately	S	K	Y	DOAP session	Skill assessment / Viva Voce/ OSPE			
PY 6.8.2	At the end of the session phase I MBBS student must be able to describe the physioclinical significance of spirometry Accurately	S	KH	Y	DOAP session	Skill assessment / Viva Voce/ OSPE			
PY 6.8.3	At the end of the session phase I MBBS student must be able to perform the procedure of spirometry accurately	S	SH	Y	DOAP session	Skill assessment / Viva Voce/ OSPE			
PY 6.8.4	At the end of the session phase I MBBS student must be able to interpret spirogram accurately	S	P	Y	DOAP session	Skill assessment / Viva Voce/ OSPE			
PY6.9	Demonstrate the correct clinical examination of the respiratory system in a normal volunteer or simulated environment	S	P	Y	DOAP session	Skill assessment / Viva Voce/ OSPE	1		
Learning Objectives									
PY 6.9.1	At the end of the session phase I MBBS student must be able to the headings under which respiratory examination is to be done accurately	S	K	Y	DOAP session	Skill assessment / Viva Voce/ OSPE			
PY 6.9.2	At the end of the session phase I MBBS student must be able to enumerate the important landmarks accurately	S	K	Y	DOAP session	Skill assessment / Viva Voce/ OSPE			
PY 6.9.3	At the end of the session phase I MBBS student must be able to explain the significance of clinical examination of the respiratory system accurately	S	KH	Y	DOAP session	Skill assessment / Viva Voce/ OSPE			
PY 6.9.4	At the end of the session phase I MBBS student must be able to carry out a systematic examination of the respiratory system correctly	S	SH	Y	DOAP session	Skill assessment / Viva Voce/ OSPE	1		
PY 6.9.5	At the end of the session phase I MBBS student must be able to Auscultate for normal breath sounds accurately	S	P	Y	DOAP session	Skill assessment / Viva Voce/ OSPE			
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 session	Skill assessment / Viva Voce/ OSPE			
Learning Objectives									
PY 6.10.1	At the end of the session phase I MBBS student must be able to define peak expiratory flow rate accurately	S	K	Y	DOAP session	Skill assessment / Viva Voce/ OSPE			
PY 6.10.2	At the end of the session phase I MBBS student must be able to memorize the normal range of peak expiratory flow rate accurately	S	K	Y	DOAP session	Skill assessment / Viva Voce/ OSPE			

PY 6.10.3	At the end of the session phase I MBBS student must be able to explain the physioclinical significance of peak expiratoyr flow rate accurately	S	KH	Y	DOAP session	Skill assessment / Viva Voce/ OSPE			
PY 6.10.4	At the end of the session phase I MBBS student must be able to interpret the result of the test (peak expiratory flow rate after giving full instructions to the given subject in the local language	S	SH	Y	DOAP session	Skill assessment / Viva Voce/ OSPE			
PY 6.10.5	At the end of the session phase I MBBS student must be able to perform peak expiratory flow rate) correctly	S	P	Y	DOAP session	Skill assessment / Viva Voce/ OSPE			
Topic: Renal Physiology		Number of competencies: (09)			Number of procedures that require certification: (NIL)				
Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/SH/P	Core Y /N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Intrgration
PY7.1	Describe structure and function of kidney	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY7.1 .1	At the end of the session Phase I MBBS student must be able to describe the functional anatomy of Renal System correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY7.1 .2	At the end of the session Phase I MBBS student must be able to label the renal cortex, renal medulla, renal calyces, medullary pyramids, renal pelvic space, renal artery, renal vein, and ureter in the given cross section of a kidney, accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY7.1 .3	At the end of the session Phase I MBBS student must be able to enumerate the components of functional unit of kidney - Nephron correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY7.1 .4	At the end of the session Phase I MBBS student must be able to discuss the organization of glomerulus in detail	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY7.1 .5	At the end of the session Phase I MBBS student must be able to describe in sequence the tubular segments through which ultrafiltrate flows correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY7.1 .6	At the end of the session Phase I MBBS student must be able to describe in sequence the blood vessels through which blood flows when passing from the renal artery to the renal vein, including the glomerular blood vessels, peritubular capillaries, and the vasa recta. correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY7.1 .7	At the end of the session Phase I MBBS student must be able to distinguish between cortical and juxtamedullary nephrons correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY7.2	Describe the structure and functions of juxta glomerular apparatus and role of renin-angiotensin system	K	K	Y	SLD (self directed learning)	MCQ			

Learning Objectives								
PY7.2.1	At the end of the session Phase I MBBS student must be able to describe the structure of JG apparatus accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce		
PY7.2.2	At the end of the session Phase I MBBS student must be able to discuss the functions of JG Apparatus correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce		
PY7.2.3	At the end of the session Phase I MBBS student must be able to enumerate the components of the renin-angiotensin system correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce		
PY7.2.4	At the end of the session Phase I MBBS student must be able to elaborate the functions of the renin-angiotensin system correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce		
PY7.2.5	At the end of the session Phase I MBBS student must be able to diagram the formation and generation of angiotensin II, beginning with renin	K	KH	Y	Lecture, Small group discussion	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, Small group discussion	Written/Viva voce		
Learning Objectives								
PY7.3.1	At the end of the session Phase I MBBS student must be able to enumerate steps involved in urine formation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce		
PY7.3.2	At the end of the session Phase I MBBS student must be able to explain GFR in relation to its definition, normal value and composition correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce		
PY7.3.3	At the end of the session Phase I MBBS student must be able to discuss the determinants of GFR in detail	K	K	Y	Lecture, Small group discussion	Written/Viva voce		
PY7.3.4	At the end of the session Phase I MBBS student must be able to discuss the regulation of GFR correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce		
PY7.3.5	At the end of the session Phase I MBBS student must be able to know and interpret the work of afferent and efferent arterioles to control the GFR correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		
PY7.3.6	At the end of the session Phase I MBBS student must be able to explain the effect of decreased blood pressure on GFR correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		
PY7.3.7	At the end of the session Phase I MBBS student must be able to predict the change in renal blood flow and glomerular filtration caused by increased synthesis of angiotensin II accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		

PY7.3 .8	At the end of the session Phase I MBBS student must be able to predict the change in renal blood flow and glomerular filtration caused by urinary tract obstruction correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .9	At the end of the session Phase I MBBS student must be able to predict the change in renal blood flow and glomerular filtration caused by hypoalbuminemia accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .10	At the end of the session Phase I MBBS student must be able to predict the change in renal blood flow and glomerular filtration caused by diabetic nephropathy accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .11	At the end of the session Phase I MBBS student must be able to explain the basis of increase GFR within 1 or 2 hours after a person eats a high-protein meal.	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .12	At the end of the session Phase I MBBS student must be able to describe the contribution of the major nephron segments to the reabsorption of the filtered load of solutes accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .13	At the end of the session Phase I MBBS student must be able to describe the contribution of the major nephron segments to the reabsorption of the filtered load of water accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .14	At the end of the session Phase I student must be able to describe the cellular mechanisms for the transport of various solutes correctly by the major tubular segments correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .15	At the end of the session Phase I MBBS student must be able to describe the cellular mechanisms for the transport of water correctly by the major tubular segments correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .16	At the end of the session Phase I MBBS student must be able to describe the actions of various hormones on different tubular segments briefly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .17	At the end of the session Phase I student must be able to enumerate the factors affecting reabsorption and secretion in different tubular segments correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .18	At the end of the session Phase I MBBS student must be able to Know what the filtration fraction is and its typical range of values accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .19	At the end of the session Phase I MBBS student must be able to calculate the filtered load accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

PY7.3 .20	At the end of the session Phase I MBBS student must be able to discuss the glucose reabsorption in tubules in respect to its mechanism , Transport maximum and renal threshold for glucose accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .21	At the end of the session Phase I MBBS student must be able to difference between diabetic glycosuria and renal glycosuria	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .22	At the end of the session Phase I MBBS student must be able to enumerate requirements for Excreting a Concentrated Urine correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .23	At the end of the session Phase I MBBS student must be able to explain renal mechanism of excreting dilue urine coorrectly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .24	At the end of the session Phase I MBBS student must be able to describe the role of Urea Contributes to Hyperosmotic Renal Medullary Interstitium	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .25	At the end of the session Phase I MBBS student must be able to describe the role of the ascending limb of the loop of Henle in producing a high renal interstitial fluid osmolarity	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .26	At the end of the session Phase I MBBS student must be able to interpret how ADH regulates urine volume and plasma osmolality	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .27	At the end of the session Phase I MBBS student must be able to explain what is the end result of high ADH on urine vomume and plasma osmolarity correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .28	At the end of the session Phase I MBBS student must be able to explain what is the end result of low ADH on urine vomume and plasma osmolarity correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.3 .29	At the end of the session Phase I MBBS student must be able to distinguish between central and nephrogenic diabetes insipidus based on plasma ADH levels accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.4	Describe & discuss the significance & implication of Renal clearance	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Learning Objectives									
PY7.4.1	At the end of the session Phase I MBBS student must be able to define renal clearance correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.4.2	At the end of the session Phase I MBBS student must be able to explain significance of renal clearance correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			

PY7.4.3	At the end of the session Phase I MBBS student must be able to discuss clinicophysiological application of renal clearance correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.5	Describe the renal regulation of fluid and electrolytes & acid-base balance	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Learning Objectives									
PY7.5.1	At the end of the session Phase I MBBS student must be able to give normal composition of ECF & ICF correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.5.2	At the end of the session Phase I MBBS student must be able to list mechanisms which regulate homeostasis of ECF correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.5.3	At the end of the session Phase I MBBS student must be able to list various mechanisms which interact to maintain fluid balance correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.5.4	At the end of the session Phase I MBBS student must be able to list various mechanisms which are involved in electrolyte balance correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.5.5	At the end of the session Phase I MBBS student must be able to list principal buffer systems involved in regulation of acid base balance correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.5.6	At the end of the session Phase I MBBS student must be able to explain role of kidney in regulation of acid base balance correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.5.7	At the end of the session Phase I MBBS student must be able to explain physiological relevance of maintaining electrolyte & fluid balance correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.5.8	At the end of the session Phase I MBBS student must be able to list disorders of acid base imbalance accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.5.9	At the end of the session Phase I MBBS student must be able to compare hypotonic & hypertonic solution effect on blood cells correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.5.10	At the end of the session Phase I MBBS student must be able to compare respiratory acidosis and respiratory alkalosis accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.5.11	At the end of the session Phase I MBBS student must be able to compare metabolic acidosis and metabolic alkalosis accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.6	Describe the innervations of urinary bladder, physiology of micturition and its abnormalities	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Learning Objectives									

PY 7.6.1	At the end of the session Phase I MBBS student must be able to describe the physiological anatomy of the urinary bladder correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY 7.6.2	At the end of the session Phase I MBBS student must be able to describe the nerve supply of urinary bladder accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY 7.6.3	At the end of the session Phase I MBBS student must be able to explain the micturition reflex correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY 7.6.4	At the end of the session Phase I MBBS student must be able to explain the mechanism of voluntary control on micturition correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY 7.6.5	At the end of the session Phase I MBBS student must be able to Explain the role of somatic nerve in micturition reflex and in urination correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY 7.6.6	At the end of the session Phase I MBBS student must be able to Explain the role of parasympathetic nerves in the in micturition reflex and in urination correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY 7.6.7	At the end of the session Phase I MBBS student must be able to Explain the role of (pudendal) sympathetic in micturition reflex and in urination	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY 7.6.8	At the end of the session Phase I MBBS student must be able to discuss Effect of deafferentation on bladder function correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY 7.6.9	At the end of the session Phase I MBBS student must be able to discuss Effect of denervation (afferent and efferent) on bladder function correctly briefly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY 7.6.10	At the end of the session Phase I MBBS student must be able to dicuss the bladder dysfunction if the higher control of urinary bladder in lost briefly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY 7.6.11	At the end of the session Phase I MBBS student must be able to discuss the bladder dysfunction in spinal cord lesion briefly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.7	Describe artificial kidney, dialysis and renal transplantation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		General Medicine	
Learning Objectives									
PY7.7.1	At the end of the session Phase I MBBS student must be able to define dialysis accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.7.2	At the end of the session Phase I MBBS student must be able to explain physiological basis of dialysis correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			

PY7.7.3	At the end of the session Phase I MBBS student must be able to describe artificial kidney correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.7.4	At the end of the session Phase I MBBS student must be able to list advantages and disadvantages of dialysis correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.7.5	At the end of the session Phase I MBBS student must be able to discuss clinical indications of dialysis correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.7.6	At the end of the session Phase I MBBS student must be able to discuss clinical implication of renal transplant correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.8	Describe & discuss Renal Function Tests	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Biochemistry
Learning Objectives									
PY7.8.1	At the end of the session Phase I MBBS student must be able to enumerate renal function tests correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.8.2	At the end of the session Phase I MBBS student must be able to give physiological relevance of renal function tests accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.8.3	At the end of the session Phase I MBBS student must be able to list parameters to be assessed in urine analysis accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			BIOCHEMISTRY
PY7.8.4	At the end of the session Phase I MBBS student must be able to list parameters to be assessed in blood examination for diagnosis of early impairment of renal function correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.8.5	At the end of the session Phase I MBBS student must be able to explain physiological basis of inulin clearance as a measure of GFR correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.8.6	At the end of the session Phase I MBBS student must be able to explain physiological basis of creatine clearance as a clearance test used for estimation of GFR in humans accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.8.7	At the end of the session Phase I MBBS student must be able to explain clinical importance of PAH to measure Renal plasma flow correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.8.8	At the end of the session Phase I MBBS student must be able to compare inulin and creatine clearance tests for estimation of GFR correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.8.9	At the end of the session Phase I MBBS student must be able to interpret the given urine report correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

PY7.8.10	At the end of the session Phase I MBBS student must be able to interpret the given blood report for diagnosis of renal dysfunction correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.9	Describe cystometry and discuss the normal cystometrogram	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Learning Objectives									
PY7.9(1)	At the end of the session Phase I MBBS student must be able to Define cystometry accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.9(2)	At the end of the session Phase I MBBS student must be able to Define cystogram accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.9(3)	At the end of the session Phase I MBBS student must be able to Describe the components of cystogram in normal human accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY7.9(4)	At the end of the session Phase I MBBS student must be able to Draw a well labelled diagram to show cystogram correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Topic: Endocrine Physiology Number of competencies: (06) Number of procedures that require certification : (NIL)									
Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/SH/P	Core Y /N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Intrgration
PY8.1	Describe the physiology of bone and calcium metabolism	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Learning Objectives									
PY8.1.1	At the end of the session Phase I MBBS student must be able to student must be able to give an overview of calcium metabolism correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY8.1.2	At the end of the session Phase I MBBS student must be able to give an overview of phosphate metabolism correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY8.1.3	At the end of the session Phase I MBBS student must be able to describe the functions of osteoclasts and osteoblasts in bone remodelling correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY8.1.4	At the end of the session Phase I MBBS student must be able to describe the hormones regulating calcium and phosphate metabolism correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY8.1.5	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features of the diseases associated with the calcium metabolism correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

PY8.1.6	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, Small group discussion	Written/Viva voice			
Learning Objectives									
PY8.2.1	At the end of the session Phase I MBBS student must be able to describe anatomical and functional organization of pituitary gland correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.2	At the end of the session Phase I MBBS student must be able to enumerate the hormone secreted by pituitary gland correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.3	At the end of the session Phase I MBBS student must be able to list functions of anterior pituitary hormone correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.4	At the end of the session Phase I MBBS student must be able to list the functions of posterior pituitary hormones correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.5	At the end of the session Phase I MBBS student must be able to discuss functional anatomy of hypothalamohypophyseal axis correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.6	At the end of the session Phase I MBBS student must be able to enumerate hypothalamic hormone correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.7	At the end of the session Phase I MBBS student must be able to list the function of hypothalamic hormone correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.8	At the end of the session Phase I MBBS student must be able to discuss the physiological significance of hypothalamohypophyseal portal system correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.9	At the end of the session Phase I MBBS student must be able to enumerate the mechanism of regulation of endocrine hormone correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.10	At the end of the session Phase I MBBS student must be able to explain the physiological basis of positive feedback mechanism in hormone regulation correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.11	At the end of the session Phase I MBBS student must be able to explain the physiological basis of negative feedback mechanism in hormone regulation correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.12	At the end of the session Phase I MBBS student must be able to list the function of GH correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

PY8.2.13	At the end of the session Phase I MBBS student must be able to explain the physiological action of GH on skeletal growth correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.14	At the end of the session Phase I MBBS student must be able to explain the physiological action of GH on metabolism correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.15	At the end of the session Phase I MBBS student must be able to list the functions of insulin like growth factor/ somatomedins correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.16	At the end of the session Phase I MBBS student must be able to explain the role of various factor regulating growth hormone secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.17	At the end of the session Phase I MBBS student must be able to compare functions of GH and insulin like growth factor correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.18	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features of hypersecretion of GH correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.19	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features of hyposecretion of GH correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.20	At the end of the session Phase I MBBS student must be able to compare gigantism and acromegaly correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.21	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features of pituitary dwarf pituitary dwarf correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.22	At the end of the session Phase I MBBS student must be able to describe the physiological actions of oxytocin correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.23	At the end of the session Phase I MBBS student must be able to explain the role of various factors regulating oxytocin secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.24	At the end of the session Phase I MBBS student must be able to explain the physiological basis of use of oxytocin in parturition correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.25	At the end of the session Phase I MBBS student must be able to describe the physiological actions of ADH correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.26	At the end of the session Phase I MBBS student must be able to describe factors causing release of ADH correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

PY8.2.27	At the end of the session Phase I MBBS student must be able to explain the physiological basis of disorders due to inappropriate ADH secretion correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.28	At the end of the session Phase I MBBS student must be able to describe functional anatomy of thyroid gland correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			ANATOMY
PY8.2.29	At the end of the session Phase I MBBS student must be able to discuss iodine metabolism in detail	K	K	Y	Lecture, Small group discussion	Written/Viva voice			BIOCHEMISTRY
PY8.2.30	At the end of the session Phase I MBBS student must be able to list the steps in thyroid hormone secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			BIOCHEMISTRY
PY8.2.31	At the end of the session Phase I MBBS student must be able to explain the mechanism of action of thyroid hormone correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.32	At the end of the session Phase I MBBS student must be able to explain the various factors in regulation of thyroid hormone correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.33	At the end of the session Phase I MBBS student must be able to describe the physiological actions of thyroid hormone correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.34	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features of disorder due to hyposecretion of thyroid hormone correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.35	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features of disorder due to hypersecretion of thyroid hormone correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.36	At the end of the session Phase I MBBS student must be able to explain the physiological basis of functions of thyroid hormone correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.37	At the end of the session Phase I MBBS student must be able to explain the physiological basis of goiter correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.38	At the end of the session Phase I MBBS student must be able to explain pathophysiology of Grave's disease correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.39	At the end of the session Phase I MBBS student must be able to compare and contrast Hypo and Hyperthyroidism correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.40	At the end of the session Phase I MBBS student must be able to compare and contrast pituitary and thyroid dwarf correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

PY8.2.41	At the end of the session Phase I MBBS student must be able to compare and contrast cretinism and myxedema correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.42	At the end of the session Phase I MBBS student must be able to discuss the physiological basis of actions of antithyroid drug correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.43	At the end of the session Phase I MBBS student must be able to enumerate the various hormones secreted by endocrine pancreas correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.44	At the end of the session Phase I MBBS student must be able to discuss the physiological actions of hormones secreted by pancreas correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.45	At the end of the session Phase I MBBS student must be able to explain the factors regulating secretion of hormones secreted by pancreas correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.46	At the end of the session Phase I MBBS student must be able to compare actions of glucagon and insulin accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.47	At the end of the session Phase I MBBS student must be able to describe the role of various hormones in regulation of normal blood glucose level correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.48	At the end of the session Phase I MBBS student must be able to enumerate adrenocortical hormones with examples correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.49	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features associated with diseases of endocrine pancreas correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.50	At the end of the session Phase I MBBS student must be able to discuss the regulation of secretion of adrenocortical hormones correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.51	At the end of the session Phase I MBBS student must be able to discuss the actions of adrenocortical hormones correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.2.52	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features associated with adrenal cortex correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.3	Describe the physiology of Thymus & Pineal Gland	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

Learning Objectives

PY8.3(1)	At the end of the session Phase I MBBS student must be able to discuss the functions of pineal gland accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.3(2)	At the end of the session Phase I MBBS student must be able to explain the role of melatonin in sleepiness and wakefulness correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.3(3)	At the end of the session Phase I MBBS student must be able to discuss the functions of thymus accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.3(4)	At the end of the session Phase I MBBS student must be able to give the physiological basis of the use of melatonin for jet lag treatment correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.4	Describe function tests: Thyroid gland; Adrenal cortex, Adrenal medulla and pancreas	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			Biochemistry
Learning Objectives									
PY8.4.1	At the end of the session Phase I MBBS student must be able to describe thyroid function tests along with its normal values accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			BIOCHEMISTRY
PY8.4.2	At the end of the session Phase I MBBS student must be able to describe adrenal cortex tests accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			BIOCHEMISTRY
PY8.4.3	At the end of the session Phase I MBBS student must be able to describe pancreatic function tests related to endocrine functions correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			BIOCHEMISTRY
PY8.4.4	At the end of the session Phase I MBBS student must be able to interpret abnormal thyroid function tests accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.4.5	At the end of the session Phase I MBBS student must be able to explain the clinical relevance of adrenal cortex tests correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.4.6	At the end of the session Phase I MBBS student must be able to interpret abnormal pancreatic function tests accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
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, Small group discussion	Written/Viva voice			
PY8.6	Describe & differentiate the mechanism of action of steroid, protein and amine hormones	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			Human Anatomy
Learning Objectives									
PY8.6.1	At the end of the session Phase I MBBS student must be able to explain the receptors for action of hormones correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

PY8.6.2	At the end of the session Phase I MBBS student must be able to explain the mechanism of action of steroid hormones correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.6.3	At the end of the session Phase I MBBS student must be able to explain the mechanism of action of amine hormones correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY8.6.4	At the end of the session Phase I MBBS student must be able to compare the actions of lipophilic and hydrophilic hormones correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

Topic: Reproductive Physiology

Number of competencies: (12)

Number of procedures that require certification: (NIL)

Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/SH/P	Core Y /N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Intrgration
PY9.1	Describe and discuss sex determination; sex differentiation and their abnormalities and outline psychiatry and practical implication of sex determination	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			ANATOMY

Learning Objectives

PY 9.1.1	At the end of the session Phase I MBBS student must be able to describe sex determination correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			ANATOMY
PY 9.1.2	At the end of the session Phase I MBBS student must be able to enumerate stages of sex differentiation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			ANATOMY
PY 9.1.3	At the end of the session Phase I MBBS student must be able to enumerate abnormalities of sex differentiation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.1.4	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features ofTurne's syndrome correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.1.5	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features ofKlinfelter's syndrome correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.1.6	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features of Klinfelter's syndrome correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.1.7	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features of Down's syndrome correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.1.8	At the end of the session Phase I MBBS student must be able to differentiate between true hermaphrodite, male hermephrodite and female hermaphrodite correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

PY 9.1.9	At the end of the session Phase I MBBS student must be able to discuss the psycitry and practical implication of sex determination correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.2	Describe and discuss puberty: onset, progression, stages; early and delayed puberty and outline adolescent clinical and psychological association.	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY 9.2.1	At the end of the session Phase I MBBS student must be able to define puberty correctly .	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.2.2	At the end of the session Phase I MBBS student must be able to know the timing of puberty correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.2.3	At the end of the session Phase I MBBS student must be able to explain endocrine control of puberty correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.2.4	At the end of the session Phase I MBBS student must be able to explain phsical changes in puberty correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.2.5	At the end of the session Phase I MBBS student must be able to explain hormonal changes of puberty correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.2.6	At the end of the session Phase I MBBS student must be able to explain control of onset of puberty correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.2.7	At the end of the session Phase I MBBS student must be able to enumerate factors affecting puberty correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.2.8	At the end of the session Phase I MBBS student must be able to compare physical changes during puberty in males and females correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.2.9	At the end of the session Phase I MBBS student must be able to enumerate abnormal puberty correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.2.10	At the end of the session Phase I MBBS student must be able to explain the pathophysiology of delayed puberty correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.2.11	At the end of the session Phase I MBBS student must be able to explain the pathophysiology of precoious puberty correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.3	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, Small group discussion	Written/Viva voice			
Learning Objectives									

PY9.3.1	At the end of the session Phase I MBBS student must be able to describe functions of male reproductive organs correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.3.3	At the end of the session Phase I MBBS student must be able to describe male hormones correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.3.4	At the end of the session Phase I MBBS student must be able to describe actions of male reproductive hormones correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.3.5	At the end of the session Phase I MBBS student must be able to describe the process involved in regulation of testosterone secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.3.6	At the end of the session Phase I MBBS student must be able to define spermatogenesis correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.3.7	At the end of the session Phase I MBBS student must be able to explain events during spermatogenesis correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.3.8	At the end of the session Phase I MBBS student must be able to explain regulation of spermatogenesis correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.3.9	At the end of the session Phase I MBBS student must be able to enumerate factors affecting spermatogenesis correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.3.10	At the end of the session Phase I MBBS student must be able to describe sperm in regard to its structure and functions correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.3.11	At the end of the session Phase I MBBS student must be able to describe blood testicular barrier correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.3.12	At the end of the session Phase I MBBS student must be able to enumerate male reproductive system disorders correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.3.13	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features of Cryptorchidism correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.3.14	At the end of the session Phase I MBBS student must be able to explain the physiological basis of sterility in furnace worker & engine drivers correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
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, Small group discussion	Written/Viva voice			
Learning Objectives									
9.4.1	At the end of the session Phase I MBBS student must be able to enumerate the physiological stages in females correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

9.4.2	At the end of the session Phase I MBBS student must be able to describe functions of female reproductive organs correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
9.4.3	At the end of the session Phase I MBBS student must be able to describe endocrine function of ovary correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
9.4.4	At the end of the session Phase I MBBS student must be able to describe actions of female reproductive hormones correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
9.4.5	At the end of the session Phase I MBBS student must be able to describe the process involved in regulation of female hormones secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
9.4.6	At the end of the session Phase I MBBS student must be able to describe oogenesis correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
9.4.7	At the end of the session Phase I MBBS student must be able to describe folliculogenesis correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
9.4.8	At the end of the session Phase I MBBS student must be able to define menstrual cycle correctly along with duration.	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
9.4.9	At the end of the session Phase I MBBS student must be able to enumerate the changes in menstrual cycle correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
9.4.10	At the end of the session Phase I MBBS student must be able to explain ovarian cycle correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
9.4.11	At the end of the session Phase I MBBS student must be able to explain uterine cycle correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
9.4.12	At the end of the session Phase I MBBS student must be able to explain other changes during menstrual cycle correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
9.4.13	At the end of the session Phase I MBBS student must be able to explain the hormonal regulation of menstrual cycle correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
9.4.14	At the end of the session Phase I MBBS student must be able to explain the physiological significance of ovulation correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
9.4.15	At the end of the session Phase I MBBS student must be able to explain how to know that one is ovulating (Indicators of ovulation) correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
9.4.16	At the end of the session Phase I MBBS student must be able to explain physiological basis of pre menstrual syndrome correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

9.4.17	At the end of the session Phase I MBBS student must be able to explain physiological basis of symptoms during menstruation correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.5	Describe and discuss the physiological effects of sex hormones K	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY9.5.1	At the end of the session Phase I MBBS student must be able to enumerate sex hormones in males correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.5.2	At the end of the session Phase I MBBS student must be able to discuss the physiological actions of sex hormones in males correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.5.3	At the end of the session Phase I MBBS student must be able to explain HP Axis and hormonal feedback in males correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.5.4	At the end of the session Phase I MBBS student must be able to enumerate sex hormones in females correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.5.5	At the end of the session Phase I MBBS student must be able to discuss the physiological actions of sex hormones in females correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.5.6	At the end of the session Phase I MBBS student must be able to explain HP Axis and hormonal feedback in females correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.5.7	At the end of the session Phase I MBBS student must be able to explain clinico physiological significance of sex hormones correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.6	Enumerate the contraceptive methods for male and female. Discuss their advantages & disadvantages	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		Obstetrics & Gynecology, Community Medicine	
Learning Objectives									
PY 9.6.1	At the end of the session Phase I MBBS student must be able to define contraceptive methods correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.6.2	At the end of the session Phase I MBBS student must be able to importance of contraceptive methods correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.6.3	At the end of the session Phase I MBBS student must be able to physiological basis of classification of contraceptive methods correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.6.4	At the end of the session Phase I MBBS student must be able to explain physiological mechanism of natural methods of contraceptive methods correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

PY 9.6.5	At the end of the session Phase I MBBS student must be able to describe the mechanism of action of oral contraceptive pills correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.6.6	At the end of the session Phase I MBBS student must be able to describe the mechanism of action of Intra uterine contraceptive device correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.6.8	At the end of the session Phase I MBBS student must be able to describe the mechanism of action of emergency contraception correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.6.9	At the end of the session Phase I MBBS student must be able to describe the methods of emergency contraception correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.6.11	At the end of the session Phase I MBBS student must be able to calculate safe period when the menstrual periods are regular correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.6.12	At the end of the session Phase I MBBS student must be able to calculate safe period when the menstrual periods are irregular correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.7	Describe and discuss the effects of removal of gonads on physiological functions	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY9.7.1	At the end of the session Phase I MBBS student must be able to describe the functions of gonads correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.7.2	At the end of the session Phase I MBBS student must be able to explain the physiological effects after removal of gonads before puberty in females correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.7.3	At the end of the session Phase I MBBS student must be able to explain the physiological effects after removal of gonads after puberty in females correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.7.4	At the end of the session Phase I MBBS student must be able to explain the physiological effects after removal of gonads before puberty in males correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.7.5	At the end of the session Phase I MBBS student must be able to explain the physiological effects after removal of gonads after puberty in males correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
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, Small group discussion	Written/Viva voice		Obstetrics & Gynecology	
Learning Objectives									

PY9.8.1	At the end of the session Phase I MBBS student must be able to define pregnancy correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.8.2	At the end of the session Phase I MBBS student must be able to describe the role of placenta in pregnancy correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.8.3	At the end of the session Phase I MBBS student must be able to explain the maternal changes during pregnancy correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.8.4	At the end of the session Phase I MBBS student must be able to define parturition correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.8.5	At the end of the session Phase I MBBS student must be able to describe the hormonal factors responsible for parturition correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.8.6	At the end of the session Phase I MBBS student must be able to explain the mechanism of parturition correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.8.7	At the end of the session Phase I MBBS student must be able to explain the term " Parturition ia an example of positive feed back mechanism" correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.8.8	At the end of the session Phase I MBBS student must be able to functional anatomy of breast correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.8.9	At the end of the session Phase I MBBS student must be able to define lactation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.8.10	At the end of the session Phase I MBBS student must be able to describe the stages of lactation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.8.11	At the end of the session Phase I MBBS student must be able to describe hormones responsible for the stages of lactation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.8.12	At the end of the session Phase I MBBS student must be able to enumerate the factors affecting lactation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.8.13	At the end of the session Phase I MBBS student must be able to explain the mechanism of lactation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.8.14	At the end of the session Phase I MBBS student must be able to list the composition of breast milk correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.8.15	At the end of the session Phase I MBBS student must be able to compare human colostrum and human breast milk correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

PY9.8.16	At the end of the session Phase I MBBS student must be able to explain the physiological mechanism underlying lactational Amenorrheacorrectly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.8.17	At the end of the session Phase I MBBS student must be able to explain how does lactational amenorrhea work to prevent pregnancy accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.8.18	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, Small group discussion	Written/Viva voice			
Learning Objectives									
PY 9.9.1	At the end of the session Phase I MBBS student must be able significance of semen analysis correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.9.2	At the end of the session Phase I MBBS student must be able memorize the reference values of serum paramters according to WHO criteria 2010 precisely	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.9.3	At the end of the session Phase I MBBS student must be able to enumerate the parameters involved in macroscopic examination of serum accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.9.4	At the end of the session Phase I MBBS student must be able to enumerate the parameters involved inmiscroscopic examination of serum accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.9.5	At the end of the session Phase I MBBS student must be able to interpret the given semun analysis report accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.10	Discuss the physiological basis of various pregnancy tests	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		Obstetrics & Gynecology	
Learning Objectives									
9.10.1	At the end of the session Phase I MBBS student must be able to describe the basis of pregnancy tests correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
9.10.2	At the end of the session Phase I MBBS student must be able to enumerate pregnancy tests correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
9.10.3	At the end of the session Phase I MBBS student must be able to explain the physiological basis of Immunological tests of pregnancy correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY9.11	Discuss the hormonal changes and their effects during perimenopause and menopause	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		Obstetrics & Gynecology	
Learning Objectives									
PY 9.11.1	At the end of the session Phase I MBBS student must be able to define physiological menoapuse correctly along with its duration	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

PY 9.11.2	At the end of the session Phase I MBBS student must be able to enumerate the phases of menopause correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.11.3	At the end of the session Phase I MBBS student must be able to define perimenopause correctly along with its duration	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.11.4	At the end of the session Phase I MBBS student must be able to enumerate hormonal changes in perimenopause correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.11.5	At the end of the session Phase I MBBS student must be able to explain the causes of menopause (Hormonal changes) correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.11.6	At the end of the session Phase I MBBS student must be able to describe the physiological changes in menopause correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.11.7	At the end of the session Phase I MBBS student must be able to describe the psychological changes in menopause correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.11.8	At the end of the session Phase I MBBS student must be able to physiological basis of signs and symptoms of perimenopause correctly	K	K H	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.11.9	At the end of the session Phase I MBBS student must be able to explain physiological basis of treatment of menopausal symptoms by HRT correctly	K	K H	Y	Lecture, Small group discussion	Written/Viva voice			
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, Small group discussion	Written/Viva voice			Obstetrics & Gynecology
Learning Objectives									
PY 9.12.1	At the end of the session Phase I MBBS student must be able to define infertility correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.12.2	At the end of the session Phase I MBBS student must be able to enumerate the types of infertility correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.12.3	At the end of the session Phase I MBBS student must be able to describe the basis of fertility correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.12.4	At the end of the session Phase I MBBS student must be able to enumerate the factors affecting fertility correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.12.5	At the end of the session Phase I MBBS student must be able to enumerate the causes of infertility in males correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.12.6	At the end of the session Phase I MBBS student must be able to enumerate the causes of infertility in females correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

PY 9.12.7	At the end of the session Phase I MBBS student must be able to enumerate the steps of evaluation of infertility correctly	K	K H	Y	Lecture, Small group discussion	Written/Viva voice			
PY 9.12.8	At the end of the session Phase I MBBS student must be able to explain the physiological basis of use of ovulation inducing drugs in the management of infertility correctly	K	K H	Y	Lecture, Small group discussion	Written/Viva voice			
Topic: Neurophysiology									
Number of competencies: (20)				Number of procedures that require certification: (09)					
Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/SH/P	Core Y /N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Intrgration
PY10.1	Describe and discuss the organization of nervous system	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			ANATOMY
Learning Objectives									
PY10.1.1	At the end of the session phase I MBBS student must be able to explain the division of nervous system correctly	K	K	Y	Lecture, Small group discussion	MCQs/ Viva voce			Anatomy
PY10.1.2	At the end of the session phase I MBBS student must be able to enumerate the modes of CNS protection correctly	K	K	Y	Lecture, Small group discussion	MCQs/ Viva voce			
PY10.1.3	At the end of the session phase I MBBS student must be able to enumerate the functions of all the divisions of nervous system correctly	K	K	Y	Lecture, Small group discussion	MCQs/ Viva voce			
PY10.1.4	At the end of the session phase I MBBS student must be able to label the various parts of nervous system in the given daigram correctly	K	KH	Y	small group discussion	written/ MCQ			
PY10.2	Describe and discuss the functions and properties of synapse, reflex, receptors	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			Human Anatomy
Learning Objectives									
PY 10.2.1	At the end of the session phase I MBBS student must be able to explain synaptic transmission correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY 10.2.2	At the end of the session phase I MBBS student must be able to describe the electrical event on the Postsynaptic Membrane(EPSP & IPSP) correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY 10.2.3	At the end of the session phase I MBBS student must be able to describe the properties of synapse correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY 10.2.4	At the end of the session phase I MBBS student must be able to compare IPSP and EPSP correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY 10.2.5	At the end of the session phase I MBBS student must be able to compare spatial and temporal summation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY 10.2.6	At the end of the session phase I MBBS student must be able to compare occlusion and subliminal fringe	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			

PY 10.2.7	At the end of the session phase I MBBS student must be able to compare convergence and divergence	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY 10.2.8	At the end of the session phase I MBBS student must be able to List the major receptor classifications correctly	K	K	Y	Lecture, Small group discussion	MCQ/Viva			
PY 10.2.9	At the end of the session phase I MBBS student must be able to describe receptor potential accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY 10.2.10	At the end of the session phase I MBBS student must be able to describe properties of receptors accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY 10.2.11	At the end of the session Phase I MBBS student must be able to differentiate rapidly and slowly adapting sensory reception briefly .	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY 10.2.12	At the end of the session Phase I MBBS student must be able to classify the major reflex classification correctly	K	K	Y	Lecture, Small group discussion	MCQ/Viva			
PY 10.2.13	At the end of the session Phase I MBBS student must be able to explain reflex arc of stretch reflex correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY 10.2.14	At the end of the session Phase I MBBS student must be able to describe muscle spindle correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY 10.2.15	At the end of the session Phase I MBBS student must be able to discuss the role of gamma motor neuron on stretch reflex accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY 10.2.16	At the end of the session Phase I MBBS student must be able to explain the supraspinal control of stretch reflex accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY 10.2.17	At the end of the session Phase I MBBS student must be able to explain reflex arc of inverse stretch reflex correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY 10.2.18	At the end of the session Phase I MBBS student must be able to discuss reciprocal innervation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY 10.2.19	At the end of the session Phase I MBBS student must be able to discuss the plantar reflex correctly	K	K	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce / Skill assessment			
PY 10.2.20	At the end of the session Phase I MBBS student must be able to discuss the withdrawal reflex accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY 10.2.21	At the end of the session Phase I MBBS student must be able to discuss the clinical application of reflexes accurately	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.3	Describe and discuss somatic sensations & sensory tracts	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
Learning Objectives									

PY10.3.1	At the end of the session Phase I MBBS student must be able to describe Sensory tracts of various somatic sensation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.3.2	At the end of the session Phase I MBBS student must be able to explain how receptors convert physical stimuli into electrical signal (Receptor potential) accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.3.3	At the end of the session Phase I MBBS student must be able to explain role of somatosensory cortex in somatic sensation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.3.4	At the end of the session Phase I MBBS student must be able to contrast and compare dorsal column tract & spinothalamic tract accurately	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.3.5	At the end of the session Phase I MBBS student must be able to describe neural pathway for pain correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.3.6	At the end of the session Phase I MBBS student must be able to give the physiological basis of signs & symptoms of lesion of sensory pathways correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.3.7	At the end of the session Phase I MBBS student must be able to explain the effect of lesion of somatosensory cortex correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	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, Small group discussion	Written/Viva voce			Human Anatomy
Learning Objectives									
PY10.4.1	At the end of the session Phase I MBBS student must be able to discuss how motor commands are relayed correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.4.2	At the end of the session Phase I student must be able to enumerate motor pathways of somatic nervous system accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.4.3	At the end of the session Phase I MBBS student must be able to trace corticospinal tract from motor cortex to skeletal muscle accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.4.4	At the end of the session Phase I MBBS student must be able to differentiate between pyramidal and extrapyramidal pathways correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.4.5	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features of lesion of motor pathways correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.4.6	At the end of the session Phase I MBBS student must be able to define tone correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			

PY10.4.7	At the end of the session Phase I MBBS student must be able to explain mechanism of maintenance of tone correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.4.8	At the end of the session Phase I MBBS student must be able to explain the importance of muscle tone correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.4.9	At the end of the session Phase I MBBS student must be able to discuss the abnormalities of muscle tone correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.4.10	At the end of the session Phase I MBBS student must be able to explain the mechanism of posture correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.4.11	At the end of the session Phase I MBBS student must be able to explain the role of spinal cord (spinal animal) in maintenance of posture correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.4.12	At the end of the session Phase I MBBS student must be able to explain the role of brain stem (decerebrate animal) in maintenance of posture correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.4.13	At the end of the session Phase I MBBS student must be able to explain the role of midbrain (high decerebrate animal) in maintenance of posture correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.4.14	At the end of the session Phase I MBBS student must be able to explain the role of cerebellum in maintenance of posture correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.4.15	At the end of the session Phase I MBBS student must be able to explain the role of basal ganglia(decorticate animal) in maintenance of posture correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.4.16	At the end of the session Phase I MBBS student must be able to compare decerebrate & decorticate rigidity correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.4.17	At the end of the session Phase I MBBS student must be able to enumerate brain regions that control equilibrium accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.4.18	At the end of the session Phase I MBBS student must be able to explain the role of cerebellum in control of equilibrium correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.4.19	At the end of the session Phase I MBBS student must be able to explain the role of vestibular apparatus in control of equilibrium correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.4.20	At the end of the session Phase I MBBS student must be able to explain the physiological basis of disturbed posture & equilibrium in cerebellar disorder correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			

PY10.4.21	At the end of the session Phase I MBBS student must be able to explain the physiological basis of disturbed posture & equilibrium in diseases of vestibular apparatus (inner ear) correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.5	Describe and discuss structure and functions of reticular activating system, autonomic nervous system (ANS)	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	Human Anatomy
Learning Objectives									
PY10.5.1	At the end of the session Phase I MBBS student must be able to describe the extent of RAS along with its types correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			ANATOMY
PY10.5.2	At the end of the session Phase I MBBS student must be able to describe the functions of reticular activating system correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.5.4	At the end of the session Phase I MBBS student must be able to explain the physiological basis of features occurs when reticular activating system is damaged correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.5.5	At the end of the session Phase I MBBS student must be able to describe the structure of ANS accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.5.6	At the end of the session Phase I MBBS student must be able to describe neurotransmitters of ANS correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.5.7	At the end of the session Phase I MBBS student must be able to enumerate the receptors of ANS correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.5.8	At the end of the session Phase I MBBS student must be able to enumerate the effector organ of ANS correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.5.9	At the end of the session Phase I MBBS student must be able to discuss the actions of SNS correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.5.10	At the end of the session Phase I MBBS student must be able to discuss the actions of PNS correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.5.11	At the end of the session Phase I MBBS student must be able to discuss the functions of ANS correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.5.12	At the end of the session Phase I MBBS student must be able to list the cranial and sacral nerves that produces parasympathetic outflow correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.5.13	At the end of the session Phase I MBBS student must be able to compare and contrast PNS & SNS correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.5.14	At the end of the session Phase I MBBS student must be able to discuss the features of autonomic dysfunction correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			

PY10.5.15	At the end of the session Phase I MBBS student must be able to discuss the physiological basis of use of autonomic nervous system drugs in various diseases correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.6	Describe and discuss Spinal cord, its functions, lesion & sensory disturbances	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Human Anatomy
Learning Objectives									
PY10.6.1	At the end of the session Phase I MBBS student must be able to describe the cross section of spinal cord along with the tracts correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			ANATOMY
PY10.6.2	At the end of the session Phase I MBBS student must be able to discuss the function of spinal cord correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.6.3	At the end of the session Phase I MBBS student must be able to compare LMN lesion and UMN lesion accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.6.4	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features in complete transection of spinal cord correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.6.5	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features in incomplete transection of spinal cord correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.6.6	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features in anterior lobe syndrome correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.6.7	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features in posterior lobe syndrome correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.6.8	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features in central cord syndrome	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.6.9	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features in polio correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	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, Small group discussion	Written/Viva voce		Psychiatry	Human Anatomy
Learning Objectives									
PY10.7.1	At the end of the session Phase I MBBS student must be able to describe the major areas in cerebral cortex accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			ANATOMY

PY10.7.2	At the end of the session Phase I student must be able to describe functions of all areas of cerebral cortex correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.7.3	At the end of the session Phase I MBBS student must be able to explain the somatotopic maps in cortex accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.7.4	At the end of the session Phase I MBBS student must be able to describe the functions of prefrontal lobe in detail	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.7.5	At the end of the session Phase I MBBS student must be able to differentiate between categorical hemisphere and representational hemisphere accurately	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.7.6	At the end of the session Phase I MBBS student must be able to enumerate classical lesions of cerebral cortex correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.7.7	At the end of the session Phase I MBBS student must be able to explain the physiological basis of various symptoms associated with lesions of cerebral cortex correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.7.8	At the end of the session Phase I MBBS student must be able to explain the physiological basis of various symptoms associated with prefrontal lobe accurately	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.7.9	At the end of the session Phase I MBBS student must be able to enumerate the functional components of basal ganglia correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.7.10	At the end of the session Phase I MBBS student must be able to describe the neural circuits of basal ganglia in detail correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.7.11	At the end of the session Phase I MBBS student must be able to describe the functions of basal ganglia in detail correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.7.12	At the end of the session Phase I MBBS student must be able to describe the role of basal ganglia on stretch reflex and tone correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.7.13	At the end of the session Phase I MBBS student must be able to list the various disorders associated with various components of basal ganglia accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.7.14	At the end of the session Phase I MBBS student must be able to explain the pathophysiology of Parkinson's disease correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.7.15	At the end of the session Phase I MBBS student must be able to explain the physiological basis of symptoms of Parkinson's disease correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			

PY10.7.16	At the end of the session Phase I student must be able to explain the physiological basis of use of various drugs in treatment of Parkinson's disease correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.7.17	At the end of the session Phase I MBBS student must be able to list the various nuclei of thalamus accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.7.18	At the end of the session Phase I MBBS student must be able to list the functions of thalamus correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.7.19	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features thalamic syndrome correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.7.20	At the end of the session Phase I MBBS student must be able to list the various nuclei of hypothalamus correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.7.21	At the end of the session Phase I MBBS student must be able to discuss the functions of hypothalamus in details correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.7.22	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features associated with hypothalamus abnormalities correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.7.23	At the end of the session Phase I MBBS student must be able to explain the role of hypothalamus in homeostasis correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.7.24	At the end of the session Phase I MBBS student must be able to list the various components of limbic symptoms correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.7.25	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features associated with limbic system correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.8	Describe and discuss behavioural and EEG characteristics during sleep and mechanism responsible for its production	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	
Learning Objectives									
PY10.8.1	At the end of the session Phase I MBBS student must be able to define sleep correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.8.2	At the end of the session Phase I MBBS student must be able to describe types of sleep correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.8.3	At the end of the session Phase I MBBS student must be able to explain the mechanism of sleep accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.8.4	At the end of the session Phase I MBBS student must be able to describe circadian rhythm correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			

PY10.8.5	At the end of the session Phase I MBBS student must be able to describe the stages of sleep correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.8.6	At the end of the session Phase I MBBS student must be able to describe EEG pattern in sleep accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.8.7	At the end of the session Phase I MBBS student must be able to describe sleep cycle correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.8.8	At the end of the session Phase I MBBS student must be able to enumaerate the benefits of sleep correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.8.9	At the end of the session Phase I MBBS student must be able to enumerate age wise normal sleep requirement correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.8.10	At the end of the session Phase I MBBS student must be able to enumerate factors affecting sleep correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.8.11	At the end of the session Phase I MBBS student must be able to explain the physiological effects of sleep deprivation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.8.12	At the end of the session Phase I MBBS student must be able to classify sleep diorders correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.8.13	At the end of the session Phase I MBBS student must be able to give the physiological basis of REM sleep behaviour syndrome correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.8.14	At the end of the session Phase I MBBS student must be able to explain the physiological basis of treatment of sleep correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.8.15	At the end of the session Phase I MBBS student must be able to explain the role of melatonin in sleepiness and wakefulness correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.8.16	At the end of the session Phase I MBBS student must be able to explain the physiological basis of use of melatonin in inducing sleep correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.8.17	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features of sleep aponea syndrome correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.8.18	At the end of the session Phase I MBBS student must be able to explain the physiological basis of treatment of jet lag correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.9	Describe and discuss the physiological basis of memory, learning and speech	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Psychiatry	

Learning Objectives									
PY10.9.1	At the end of the session Phase I MBBS student must be able to define learning correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.9.2	At the end of the session Phase I MBBS student must be able to discuss the mechanism of learning accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.9.3	At the end of the session Phase I student must be able to differentiate between inborn reflex and acquired reflex (unconditioned and conditioned reflex) accurately	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.9.4	At the end of the session Phase I MBBS student must be able to define memory correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.9.5	At the end of the session Phase I MBBS student must be able to discuss the physiology of memory in detail correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.9.6	At the end of the session Phase I MBBS student must be able to differentiate between declarative & non declarative memory accurately	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.9.7	At the end of the session Phase I MBBS student must be able to explain relevance of working memory correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.9.8	At the end of the session Phase I MBBS student must be able to discuss the clinical conditions associated with loss of memory correctly	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.9.9	At the end of the session Phase I MBBS student must be able to define speech correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.9.10	At the end of the session Phase I MBBS student must be able to enumerate the organs for speech	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.9.11	At the end of the session Phase I MBBS student must be able to enumerate the types of speech correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.9.12	At the end of the session Phase I MBBS student must be able to discuss the speech centres (sensory & motor) correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.9.13	At the end of the session Phase I MBBS student must be able to discuss the mechanism of speech correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.9.14	At the end of the session Phase I MBBS student must be able to distinguish between aphasia and dysarthria accurately	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.9.15	At the end of the session Phase I MBBS student must be able to distinguish between motor aphasia and sensory aphasia accurately	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			

PY10.10	Describe and discuss chemical transmission in the nervous system. (Outline the psychiatry element).	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
Learning Objectives									
PY10.10.1	At the end of the session Phase I MBBS student must be able to classify the neurotransmitters correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.10.2	At the end of the session Phase I MBBS student must be able to discuss mechanism of neurotransmitters correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.10.3	At the end of the session Phase I MBBS student must be able to discuss acetylcholine in respect to its secretion, storage & catabolism correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.10.4	At the end of the session Phase I MBBS student must be able to distinguish between muscuranic action and nicotinic action accurately	K	KH	Y	Lecture, Small group discussion ,Practicals	Written/Viva voce			
PY10.10.5	At the end of the session Phase I MBBS student must be able to discuss serotonin in respect to its secretion correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.10.6	At the end of the session Phase I MBBS student must be able to discuss actions of serotonin correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.10.7	At the end of the session Phase I MBBS student must be able to discuss histamine in respect to its secretion, storage & catabolism correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.10.8	At the end of the session Phase I MBBS student must be able to discuss actions of histamine correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.10.9	At the end of the session Phase I MBBS student must be able to discuss catecholamines in respect to its secretion, storage & catabolism correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.10.10	At the end of the session Phase I MBBS student must be able to discuss actions of catecholamines correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.10.11	At the end of the session Phase I MBBS student must be able to enumerate excitatory and inhibitory neurotransmitter accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.10.12	At the end of the session Phase I MBBS student must be able to discuss actions of endorphins & enkephalins correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.10.13	At the end of the session Phase I MBBS student must be able to discuss actions of substance P correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.10.14	At the end of the session Phase I MBBS student must be able to discuss nitric oxide in detail correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			

PY10.10.15	At the end of the session Phase I MBBS student must be able to give the physioclinical significance of the various neurotransmitter in diseases of nervous system correctly	K	KH	Y	Lecture, Small group discussion	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 voice/OSCE	1 each (total 5)		Human Anatomy
Learning Objectives									
PY10.11.1	At the end of the session Phase I MBBS student must be able to enlist the steps of administering an examination of sensory system in normal subject accurately	S	K	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
PY10.11.2	At the end of the session Phase I MBBS student must be able to discuss the clinical relevance of examining sensory system correctly	S	KH	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
PY10.11.3	At the end of the session Phase I MBBS student must be able to perform sensory system examination in normal volunteer subject correctly	S	SH	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE	1		
PY10.11.4	At the end of the session Phase I MBBS student must be able to use case study example and apply clinical decision making skill to application of sensory examination data correctly	S	P	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
PY10.11.5	At the end of the session Phase I MBBS student must be able to enlist the steps of administering an examination of motor system in normal subject correctly	S	K	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
PY10.11.6	At the end of the session Phase I MBBS student must be able to discuss the clinical relevance of examining motor system correctly	S	KH	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
PY10.11.7	At the end of the session Phase I MBBS student must be able to perform motor system examination in normal volunteer subject correctly	S	SH	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE	1		
PY10.11.8	At the end of the session Phase I MBBS student must be able to use case study example and apply clinical decision making skill to application of motor examination data correctly	S	P	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
PY10.11.9	At the end of the session Phase I MBBS student must be able to enlist the steps of administering an examination of all cranial nerves correctly	S	K	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			

PY10.11.10	At the end of the session Phase I MBBS student must be able to discuss the clinical relevance of doing cranial nerve examination correctly	S	KH	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
PY10.11.11	At the end of the session Phase I MBBS student must be able to perform all cranial nerves examination in normal volunteer subject correctly	S	SH	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE	1		
PY10.11.12	At the end of the session Phase I MBBS student must be able to use case study example and apply clinical decision making skill to application of cranial nerves examination data accurately	S	P	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
PY10.11.13	At the end of the session Phase I MBBS student must be able to discuss higher functions in detail correctly	S	K	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
PY10.11.14	At the end of the session Phase I MBBS student must be able to discuss the clinical relevance of examining higher functions correctly	S	KH	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
PY10.11.15	At the end of the session Phase I MBBS student must be able to perform clinical examination of higher functions accurately	S	SH	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE	1		
PY10.11.16	At the end of the session Phase I MBBS student must be able to discuss reflexes in detail correctly	S	K	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
PY10.11.17	At the end of the session Phase I MBBS student must be able to discuss the clinical relevance of examining reflexes correctly	S	KH	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
PY10.11.18	At the end of the session Phase I MBBS student must be able to perform testing of reflexes accurately	S	SH	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE	1		
PY10.11.19	At the end of the session Phase I MBBS student must be able to use case study example and apply clinical decision making skill to application of cranial nerves examination data accurately	S	P	Y	DOAP sessions	Skill assessment/ Viva voice/OSCE			
PY10.12	Identify normal EEG forms	S	SH	Y	Small group teaching	OSPE/Viva voce		Psychiatry	
Learning Objectives									
PY10.12.1	At the end of the session Phase I MBBS student must be able to define EEG correctly.	S	K	Y	Small group teaching	OSPE/Viva voce			
PY10.12.2	At the end of the session Phase I MBBS student must be able to Enumerate types of EEG correctly	S	K	Y	Small group teaching	OSPE/Viva voce			
PY10.12.3	At the end of the session Phase I MBBS student must be able to describe various wave patterns in normal EEG correctly.	S	K	Y	Small group teaching	OSPE/Viva voce			
PY10.12.4	At the end of the session Phase I MBBS student must be able to enumerate factors influencing EEG correctly.	S	K	Y	Small group teaching	OSPE/Viva voce			

PY10.12.5	At the end of the session Phase I MBBS student must be able to explain alpha block or desynchronization correctly.	S	KH	Y	Small group teaching	OSPE/Viva voce			
PY10.12.6	At the end of the session Phase I MBBS student must be able to describe causes of alpha block or desynchronization correctly.	S	KH	Y	Small group teaching	OSPE/Viva voce			
PY10.12.7	At the end of the session Phase I MBBS student must be able to Explain Clinical uses of EEG correctly.	S	KH	Y	Small group teaching	OSPE/Viva voce			
PY10.12.8	At the end of the session Phase I MBBS student must be able to interpret EEG correctly.	S	SH	Y	Small group teaching	OSPE/Viva voce			
PY10.13	Describe and discuss perception of smell and taste sensation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
Learning Objectives									
PY10.13(1)	At the end of the session Phase I MBBS student must be able to describe the taste receptors correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.13(2)	At the end of the session Phase I MBBS student must be able to describe the afferent pathway of taste	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.13(3)	At the end of the session Phase I MBBS student must be able to describe the smell receptors	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.13(4)	At the end of the session Phase I MBBS student must be able to describe the olfactory pathway	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.13(5)	At the end of the session Phase I MBBS student must be able to identify the cranial nerves that transmit taste sensations to cerebral cortex	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.14	Describe and discuss patho-physiology of altered smell and taste sensation	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
Learning Objectives									
PY10.14(1)	At the end of the session Phase I MBBS student must be able to enumerate the causes of taste dysfunction correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.14(2)	At the end of the session Phase I MBBS student must be able to describe the physiological basis of clinical features of altered smell sensation correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.14(3)	At the end of the session Phase I MBBS student must be able to describe the physiological basis of clinical features of altered taste sensation correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.15	Describe and discuss functional anatomy of ear and auditory pathways & physiology of hearing	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
Learning Objectives									

PY10.15.1	At the end of the session Phase I MBBS student must be able to describe the functional anatomy of ear correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			ANATOMY
PY10.15.2	At the end of the session Phase I MBBS student must be able to enumerate functions of external ear correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.15.3	At the end of the session Phase I MBBS student must be able to explain the function of middle ear correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.15.4	At the end of the session Phase I MBBS student must be able to list the function of eustachian tube correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.15.5	At the end of the session Phase I MBBS student must be able to describe the organ of corti correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.15.6	At the end of the session Phase I MBBS student must be able to describe auditory pathway correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.15.7	At the end of the session Phase I MBBS student must be able to explain the physiological basis of impedance matching by middle ear correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.15.8	At the end of the session Phase I MBBS student must be able to discuss the physiological significance of tympanic reflex correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.15.9	At the end of the session Phase I MBBS student must be able to explain the physiological aspect of rapid decent results in pain in the ear correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.15.10	At the end of the session Phase I MBBS student must be able to compare the functional significance of outer and inner hair cells correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.15.11	At the end of the session Phase I MBBS student must be able to outline the steps in transmission of sound in ear correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.15.12	At the end of the session Phase I MBBS student must be able to explain the physiological significance of basilar membrane in pitch discrimination correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.15.13	At the end of the session Phase I MBBS student must be able to differentiate b/w cochlear potential and action potential correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.16	Describe and discuss pathophysiology of deafness. Describe hearing tests	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		ENT	
Learning Objectives									
PY10.16.1	At the end of the session Phase I MBBS student must be able to define deafness correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			

PY10.16.2	At the end of the session Phase I MBBS student must be able to classify hearing defect correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.16.3	At the end of the session Phase I MBBS student must be able to enumerate causes of conductive deafness correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.16.4	At the end of the session Phase I MBBS student must be able to enumerate the causes of nerve deafness correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.16.5	At the end of the session Phase I MBBS student must be able to compare ear and bone conduction correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.16.6	At the end of the session Phase I MBBS student must be able to enumerate hearing test correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.16.7	At the end of the session Phase I MBBS student must be able to explain the principal underlying tuning fork test correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.16.8	At the end of the session Phase I MBBS student must be able to define masking correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.16.9	At the end of the session Phase I MBBS student must be able to mechanism of masking correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.16.10	At the end of the session Phase I MBBS student must be able to explain the clinical significance of masking correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.16.11	At the end of the session Phase I MBBS student must be able to discuss the physiological basis of audiometry correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.16.12	At the end of the session Phase I MBBS student must be able to differentiate b/w conductive and sensory neural deafness through tuning fork test correctly	K	KH	Y	Lecture, Small group discussion	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, Small group discussion	Written/Viva voce		Ophthalmology	
Learning Objectives									
PY10.17.1	At the end of the session Phase I MBBS student must be able to discuss the functional anatomy of eye accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voce			ANATOMY
PY10.17.2	At the end of the session Phase I MBBS student must be able to describe the optical component of eye correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.17.3	At the end of the session Phase I MBBS student must be able to describe changes that occur in close and distant vision correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			

PY10.17.4	At the end of the session Phase I MBBS student must be able to explain photoreception (role of photoreceptors) correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.17.5	At the end of the session Phase I MBBS student must be able to explain stages of photo transduction in presence and absence of light correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.17.6	At the end of the session Phase I MBBS student must be able to explain the process of adaptation to light and dark correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.17.7	At the end of the session Phase I MBBS student must be able to discuss the types of vision correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.17.8	At the end of the session Phase I MBBS student must be able to explain the mechanism of color vision correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.17.9	At the end of the session Phase I MBBS student must be able to explain the pupillary reflexes in detail correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.17.10	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features of presbyopia correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.17.11	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features of various refractory errors correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.17.12	At the end of the session Phase I MBBS student must be able to discuss how problems of refraction are corrected with lenses correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.17.13	At the end of the session Phase I MBBS student must be able to explain the physiological basis of clinical features of Vitamin A deficiency correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.17.14	At the end of the session Phase I MBBS student must be able to explain the clinical relevance of pupillary reflexes correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.17.15	At the end of the session Phase I MBBS student must be able to explain the defects of color vision in detail correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.18	Describe and discuss the physiological basis of lesion in visual pathway	K	KH	Y	Lecture, Small group discussion	Written/Viva voce		Ophthalmology	
Learning Objectives									
PY10.18.1	At the end of the session Phase I MBBS student must be able to explain the visual pathway to the processing centre of the brain correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			

PY10.18.2	At the end of the session Phase I MBBS student must be able to enumerate the effects of lesions in visual pathway correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.18.3	At the end of the session Phase I MBBS student must be able to discuss the physiological basis of lesion at different sites in visual pathway correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.18.4	At the end of the session Phase I MBBS student must be able to identify the type of lesion in the given diagram accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.19	Describe and discuss auditory & visual evoke potentials	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			Ophthalmology
Learning Objectives									
PY10.19.1	At the end of the session Phase I MBBS student must be able to define evoked potential correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.19.2	At the end of the session Phase I MBBS student must be able to describe BASEP in normal individual correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.19.3	At the end of the session Phase I MBBS student must be able to enumerate factors affecting BSEP correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.19.4	At the end of the session Phase I MBBS student must be able to describe VEP in normal individual correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.19.5	At the end of the session Phase I MBBS student must be able to mention the clinical significance of BASEP briefly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.19.6	At the end of the session Phase I MBBS student must be able to mention the clinical significance of VEP briefly	K	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.20	Demonstrate (i) Testing of visual acuity, colour and field of vision and (ii) hearing (iii) Testing for smell and (iv) taste sensation in volunteer/ simulated environment	S	P	Y	DOAP sessions	Skill assessment/ Viva voce	1 each (total 4)		ENT, Ophthalmology
Learning Objectives									
PY10.20.1	At the end of the session Phase I MBBS student must be able to define visual acuity correctly	S	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.20.2	At the end of the session Phase I MBBS student must be able to enumerate the factors affecting visual acuity correctly	S	K	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.20.3	At the end of the session Phase I MBBS student must be able to explain the clinical significance of determining visual acuity correctly	S	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.20.4	At the end of the session Phase I MBBS student must be able to perform testing the visual acuity correctly	S	P	Y	DOAP sessions	Skill assessment/ Viva voce	1		

PY10.20.5	At the end of the session Phase I MBBS student must be able to describe the color vision briefly	S	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY10.20.6	At the end of the session Phase I MBBS student must be able to explain the clinical significance of testing colour vision correctly	S	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.20.7	At the end of the session Phase I MBBS student must be able to perform ischiara test on a patient correctly	S	P	Y	DOAP sessions	Skill assessment/ Viva voice			
PY10.20.8	At the end of the session Phase I MBBS student must be able to define field of vision correctly	S	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY10.20.9	At the end of the session Phase I MBBS student must be able to define physiological blind spot correctly	S	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY10.20.10	At the end of the session Phase I MBBS student must be able to explain clinical significance of testing field of vision correctly	S	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.20.11	At the end of the session Phase I MBBS student must be able to test the field of vision of a volunterr accurately	S	P	Y	DOAP sessions	Skill assessment/ Viva voice			
PY10.20.12	At the end of the session Phase I MBBS student must be able to describe the principle underlying tuning fork tests correctly	S	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY10.20.13	At the end of the session Phase I MBBS student must be able to explain the importance of doing hearing tests clinical physiology correctly	S	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.20.14	At the end of the session Phase I MBBS student must be able to perform tuning fork tests after explain procedure to the subject in his local language correctly	S	P	Y	DOAP sessions	Skill assessment/ Viva voice	1		
PY10.20.15	At the end of the session Phase I MBBS student must be able to enumerate the materials required for testing taste sensation correctly	S	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY10.20.16	At the end of the session Phase I MBBS student must be able to explain the clinical significance of testing taste sensation correctly	S	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.20.17	At the end of the session Phase I MBBS student must be able to perform the procedure of testing taste sensation after giving clear instructions to the subject clearly accurately	S	P	Y	DOAP sessions	Skill assessment/ Viva voice	1		
PY10.20.18	At the end of the session Phase I MBBS student must be able to enumerate the materials required for testing olfactory sensation correctly	S	K	Y	Lecture, Small group discussion	Written/Viva voice			

PY10.20.19	At the end of the session Phase I MBBS student must be able to explain the clinical significance of testing olfactory sensation correctly	S	KH	Y	Lecture, Small group discussion	Written/Viva voce			
PY10.20.20	At the end of the session Phase I MBBS student must be able to perform the procedure of testing olfactory sensation after giving clear instructions to the subject clearly accurately	S	P	Y	DOAP sessions	Skill assessment/ Viva voice	1		
Topic: Integrated Physiology		Number of competencies: (14)			Number of procedures that require certification: (NIL)				
Number	COMPETENCY The student should be able to:	Domain K/S/A/C	Level K/KH/SH/P	Core Y /N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical Integration	Horizontal Intrgration
PY11.1	Describe and discuss mechanism of temperature regulation	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY11.1.1	At the end of the session Phase I MBBS student must be able to discuss heat production mechanism accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.1.2	At the end of the session Phase I MBBS student must be able to enumerate factors affecting heat production correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.1.3	At the end of the session Phase I MBBS student must be able to discuss heat loss mechanism accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.1.4	At the end of the session Phase I MBBS student must be able to enumerate factors affecting heat loss correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.1.5	At the end of the session Phase I MBBS student must be able to discuss normal body temperature correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.1.6	At the end of the session Phase I MBBS student must be able to enumerate physiological fluctuations in normal body temperature correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.1.7	At the end of the session Phase I MBBS student must be able to enumerate the effects of body temperature on cell correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.1.8	At the end of the session Phase I MBBS student must be able to discuss the insulation system of the body correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.1.9	At the end of the session Phase I MBBS student must be able to discuss the radiator system of the body accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.1.10	At the end of the session Phase I MBBS student must be able to explain steps in regulation of body temperature in flow chart accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.1.11	At the end of the session Phase I MBBS student must be able to discuss the role of hypothalamus in thermoregulation accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

PY11.2	Describe and discuss adaptation to altered temperature (heat and cold)	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY11.2.1	At the end of the session Phase I MBBS student must be able to explain the thermoregulation in cold environment correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.2.2	At the end of the session Phase I MBBS student must be able to explain the thermoregulation in hot environment correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.3	Describe and discuss mechanism of fever, cold injuries and heat stroke	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY11.3.1	At the end of the session phase I MBBS student must be able to enmearthe the abnormalities of body temperature regulation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.3.2	At the end of the session Phase I MBBS student must be able to explain the physiological basis of features associated with fever correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.3.3	At the end of the session phase I MBBS student must be able to explain the physiological basis of management of fever correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.3.4	At the end of the session phase I MBBS student must be able to explain the physiological basis of features associated with heat stroke correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.3.5	At the end of the session phase I MBBS student must be able to explain the physio-clinical significance of hypothermia correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.3.6	At the end of the session phase I MBBS student must be able to explain the physiological basis of features associated with cold injuries correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.4	Describe and discuss cardio-respiratory and metabolic adjustments during exercise; physical training effects	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		Paediatrics	
Learning Objectives									
PY 11.4.1	At the end of the session phase I MBBS student must be able to give the WHO classification of grading exercise correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 11.4.2	At the end of the session phase I MBBS student must be able to describe the cardiovascular changes during exercise correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY 11.4.3	At the end of the session phase I MBBS student must be able to describe the respiratory changes during exercise correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

PY 11.4.4	At the end of the session phase I MBBS student must be able to discuss the physiological effects of physical training correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 11.4.5	At the end of the session phase I MBBS student must be able to explain the physiological significance of warm up during exercise correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 11.4.6	At the end of the session Phase I student must be able to explain the physiological significance of low heart rate in athlete correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY 11.4.7	At the end of the session phase I MBBS student must be able to explain the physiological effects of regular exercise correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.5	Describe and discuss physiological consequences of sedentary lifestyle	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY11.5.1	At the end of the session phase I MBBS student must be able to define sedentary lifestyle correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.5.2	At the end of the session phase I MBBS student must be able to enumerate physiological consequences of sedentary lifestyle correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.5.3	At the end of the session phase I MBBS student must be able to explain physiological significance of sedentary lifestyle correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.6	Describe physiology of Infancy	K	KH	N	Lecture, Small group discussion	Written/Viva voice		Paediatrics	
Learning Objectives									
PY11.6.1	At the end of the session phase I MBBS student must be able to enumerate the stages of growth development correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.6.2	At the end of the session phase I MBBS student must be able to define infancy correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.6.3	At the end of the session phase I MBBS student must be able to describe physical growth in infancy correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.6.4	At the end of the session phase I MBBS student must be able to describe changes in various organs & systems in infancy correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.6.5	At the end of the session phase I MBBS student must be able to describe motor (gross & fine) development & maturation during infancy correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.6.6	At the end of the session phase I MBBS student must be able to describe psychological development during infancy correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			

PY11.6.7	At the end of the session phase I MBBS student must be able to summarize the milestones of development correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.6.8	At the end of the session phase I MBBS student must be able to calculate anthropometric parameters accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.6.9	At the end of the session phase I MBBS student must be able to explain the physioclinical significance of the milestones of development correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.7	Describe and discuss physiology of aging; free radicals and antioxidants	K	KH	N	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY11.7.1	At the end of the session phase I MBBS student must be able to define aging correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.7.2	At the end of the session phase I MBBS student must be able to describe the changes related to aging correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.7.3	At the end of the session phase I MBBS student must be able to describe the theories of aging correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.7.4	At the end of the session phase I MBBS student must be able to enumerate the factors that will delay aging correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.7.5	At the end of the session phase I MBBS student must be able to compare free radical and DNA damage theory of aging correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.7.6	At the end of the session phase I MBBS student must be able to explain the physiological basis of role of nutrition in delaying aging correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.7.7	At the end of the session phase I MBBS student must be able to explain the physiological basis of role of exercise in delaying aging correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.7.8	At the end of the session Phase I MBBS student must be able to define free radicals accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.7.9	At the end of the session phase I MBBS student must be able to describe formation of free radicals correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.7.10	At the end of the session phase I MBBS student must be able to list free radicals of biological importance correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.7.11	At the end of the session phase I MBBS student must be able to explain the relationship of diet with the formation of free radicals correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.7.12	At the end of the session phase I MBBS student must be able to explain physiological basis of free radical diseases correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			

PY11.7.13	At the end of the session phase I MBBS student must be able to define antioxidant nutrients accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.7.14	At the end of the session phase I MBBS student must be able to enumerate various antioxidant nutrients correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.7.15	At the end of the session phase I MBBS student must be able to explain the physiological basis of role of antioxidants in prevention of diseases correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
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	N	Lecture, Small group discussion	Written/Viva voice			
Learning Objectives									
PY11.8.1	At the end of the session phase I MBBS student must be able to discuss cardiorespiratory changes during isometric exercise correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.8.2	At the end of the session phase I MBBS student must be able to discuss cardiorespiratory changes during isotonic exercise correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.8.3	At the end of the session phase I MBBS student must be able to discuss the physiological effect of heat on cardiovascular performance during exercise correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.8.4	At the end of the session phase I MBBS student must be able to discuss the physiological effect of cold on cardiovascular performance during exercise correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.9	Interpret growth charts	K	KH	N	Small group teaching	Practical/OSPE/ Viva voice		Paediatrics	
Learning Objectives									
PY11.9.1	At the end of the session phase I MBBS student must be able to define growth accurately	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.9.2	At the end of the session phase I MBBS student must be able to describe the purpose of growth assessment correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.9.3	At the end of the session phase I MBBS student must be able to define growth chart correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.9.4	At the end of the session Phase I student must be able to enumerate the parameters to be assessed by growth chart correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.9.5	At the end of the session phase I MBBS student must be able to interpret the given growth chart correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice			
PY11.10	Interpret anthropometric assessment of infants	K	KH	N	Small group teaching	Practical/OSPE/ Viva voice		Paediatrics	

Learning Objectives								
PY 11.10.1	At the end of the session phase I MBBS student must be able to must be able to define anthropometric measurement correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice		
PY 11.10.2	At the end of the session Phase I MBBS student must be able to enumerate the growth parameters to be measured correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice		
PY 11.10.3	At the end of the session phase I MBBS student must be able to interpret the given growth parameter correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		
PY11.11	Discuss the concept, criteria for diagnosis of Brain death and its implications	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		
Learning Objectives								
PY 11.11.1	At the end of the session phase I MBBS student must be able to define brain death correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice		
PY 11.11.2	At the end of the session phase I MBBS student must be able to Describe the physiological basis of brain death correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		
PY 11.11.3	At the end of the session Phase I student must be able to enumerate the criteria for the diagnosis of brain death correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		
PY 11.11.4	At the end of the session phase I MBBS student must be able to explain the relevance of knowing the criteria for diagnosis of brain death correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		
PY11.12	Discuss the physiological effects of meditation	K	KH	N	Lecture, Small group discussion	Written/Viva voice		
Learning Objectives								
PY11.12.1	At the end of the session phase I MBBS student must be able to define meditation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice		
PY11.12.2	At the end of the session phase I MBBS student must be able to describe the physiological effects of meditation correctly	K	K	Y	Lecture, Small group discussion	Written/Viva voice		
PY11.12.3	At the end of the session phase I MBBS student must be able to explain " Meditation as a wakeful hypometabolic state" correctly	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		
PY11.12.4	At the end of the session phase I MBBS student must be able to differentiate between meditation and sleep accurately	K	KH	Y	Lecture, Small group discussion	Written/Viva voice		
PY11.13	Obtain history and perform general examination in the volunteer / simulated environment	S	SH	Y	DOAP sessions	Skill assessment/ Viva voice		
Learning Objectives								
PY11.13.1	At the end of the session phase I MBBS student must be able to enumerate the components in history taking correctly	S	K	Y	DOAP sessions	Skill assessment/ Viva voice		

PY11.13.2	At the end of the session phase I MBBS student must be able to explain the clinical relevance of history taking correctly	S	KH	Y	DOAP sessions	Skill assessment/ Viva voice			
PY11.13.3	At the end of the session phase I MBBS student must be able to perform history taking in the volunteer correctly	S	SH	Y	DOAP sessions	Skill assessment/ Viva voice			
PY11.13.4	At the end of the session phase I MBBS student must be able to describe the steps of physical examination correctly	S	K	Y	DOAP sessions	Skill assessment/ Viva voice			
PY11.13.5	At the end of the session phase I MBBS student must be able to explain the clinical relevance of physical examination correctly	S	KH	Y	DOAP sessions	Skill assessment/ Viva voice			
PY11.13.6	At the end of the session phase I MBBS student must be able to perform physical examination in the volunteer correctly	S	SH	Y	DOAP sessions	Skill assessment/ Viva voice			
PY11.14	Demonstrate Basic Life Support in a simulated environment	S	SH	Y	DOAP sessions	OSCE		General Medicine, Anaesthesiology	
Learning Objectives									
PY 11.14.1	At the end of the session phase I MBBS student must be able to describe BSL correctly	S	K	Y	DOAP sessions	Viva voice			
PY 11.14.4	At the end of thAt the end of the session phase I MBBS student must be able to know the correct sequence of BSL according to 2010 AHA Guidelines for CPR and ECC precisely	S	K	Y	DOAP sessions	Viva voice			
PY 11.14.5	At the end of the session Phase I MBBS student must be able to know the importance of BSL correctly	S	KH	Y	DOAP sessions	Viva voice			
PY 11.14.6	At the end of the session phase I MBBS student must be able to diiferentiate BSL in adults and child correctly	S	KH	Y	DOAP sessions	Viva voice			
PY 11.14.7	At the end ofAt the end of the session phase I MBBS student must be able to diiferentiate between BLS and ACLS accurately	S	KH	Y	DOAP sessions	Viva voice			
PY 11.14.8	At the end of the session phase I MBBS student must be able to perform BSL correctly	S	SH	Y	DOAP sessions	OSCE			