

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
<b>PATHOLOGY</b>										
<b>Topic: Introduction to Pathology</b>										
<b>Number of competencies: (03)</b>			<b>Number of procedures that require certification: (NIL)</b>							
PA1.1	Describe the role of a pathologist in diagnosis and management of disease	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the role of a pathologist in diagnosis of disease.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe the role of a pathologist in management of disease.</p>	K	K	Y	Departmental orientation	Written/ Viva voce			
PA1.2	Enumerate common definitions and terms used in Pathology	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the role of define Ischemia</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe the role of define hypoxia.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe the role of define necrosis.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe the role of define infarction.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe the role of define atrophy.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe the role of define hypertrophy.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to describe the role of define hyperplasia.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to describe the role of define metaplasia.</p> <p><b>Objective 9.</b> At the end of the session the phase II MBBS students must be able to describe the role of define aplasia.</p> <p><b>Objective 10.</b> At the end of the session the phase II MBBS students must be able to describe the role of define anaplasia.</p>	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PA1.3	Describe the history and evolution of Pathology	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to must know about the history of Pathology.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe the role of evolution of Pathology.</p>	K	K	N	Lecture, Small group discussion	Written/ Viva voce			
<b>Topic: Cell Injury and Adaptation</b>										
<b>Number of competencies: (08)</b>			<b>Number of procedures that require certification: (NIL)</b>							

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PA2.1	Demonstrate knowledge of the causes, mechanisms, types and effects of cell injury and their clinical significance	<b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Enumerate types of Cell Injury. <b>Objective2.</b> At the end of the Session the Phase II MBBS student must be able to Describes mechanisms of cell injury <b>Objective 3.</b> At the end of the Session the Phase II MBBS student must be able to Describe clinical significance cell injury.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.2	Describe the etiology of cell injury. Distinguish between reversible-irreversible injury: mechanisms; morphology of cell injury	<b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Describe Etiology of Cell Injury. <b>Objective 2.</b> At the end of the Session the Phase II MBBS student must be able to Differentiate reversible and irreversible injury. <b>Objective 3.</b> At the end of the Session the Phase II MBBS student must be able to Describe the Mechanism and morphology of cell injury	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.3	Intracellular accumulation of fats, proteins, carbohydrates, pigments	<b>Objective 1:</b> At the end of the Session the Phase II MBBS student must be able to Describe Intracellur accumulation of fats, proteins, Cholesterol, Carbohydrates, and pigments.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.4	Describe and discuss Cell death- types, mechanisms, necrosis, apoptosis (basic as contrasted with necrosis), autolysis	<b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Define the cell death. <b>Objective 2.</b> At the end of the Session the Phase II MBBS student must be able to Describe the Mechanisms of cell death. <b>Objective 3.</b> At the end of the Session the Phase II MBBS student must be able to Differentiate between Necrosis, Apoptysis and Autolysis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.5	Describe and discuss pathologic calcifications, gangrene	<b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Discuss pathologic calcifications <b>Objective 2.</b> At the end of the Session the Phase II MBBS student must be able to Discuss Gangrene.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.6	Describe and discuss cellular adaptations: atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia	<b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Describe cellular adaptations. <b>Objective 2.</b> At the end of the Session the Phase II MBBS student must be able to Differentiate between atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA2.7	Describe and discuss the mechanisms of cellular aging and apoptosis	<b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Describe mechanisms of cellular aging and apoptosis	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			

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PA2.8	Identify and describe various forms of cell injuries, their manifestations and consequences in gross and microscopic specimens	<p><b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Identify various forms of cell injuries.</p> <p><b>Objective 2.</b> At the end of the Session the Phase II MBBS student must be able to describe various forms of cell injuries, their manifestations and consequences in gross and microscopic specimens.</p> <p><b>Objective 3.</b> At the end of the Session the Phase II MBBS student must be able to Demonstrate various forms of cell injuries, their manifestations and consequences in gross and microscopic specimens.</p>	S	SH	Y	DOAP session	Skill assessment			

**Topic: Amyloidosis** **Number of competencies: (02)** **Number of procedures that require certification: (NIL)**

PA3.1	Describe the pathogenesis and pathology of amyloidosis	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the pathogenesis of amyloidosis.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe the properties of amyloid.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to enumerate stains of amyloid.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to classify amyloidosis.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to differentiate between primary and secondary amyloidosis.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA3.2	Identify and describe amyloidosis in a pathology specimen	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to identify amyloidosis in a pathology specimen or slide.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe the characteristics of amyloidosis in a pathology specimen or slide.</p>	S	SH	N	DOAP session	Skill assessment			

**Topic: Inflammation** **Number of competencies:(04)** **Number of procedures that require certification: (NIL)**

PA4.1	Define and describe the general features of acute and chronic inflammation including stimuli, vascular and cellular events	<p><b>Objective 1:</b> At the end of the Session the Phase II MBBS student must be able to Enumerate the features of Acute and Chronic Inflammation.</p> <p><b>Objective 2:</b> At the end of the Session the Phase II MBBS student must be able to Describe the Vascular events taking place in Acute Inflammation.</p> <p><b>Objective 3:</b> At the end of the Session the Phase II MBBS student must be able to Enumerate the Cellular events occurring during Acute Inflammation.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA4.2	Enumerate and describe the mediators of acute inflammation	<p><b>Objective 1:</b> At the end of the Session the Phase II MBBS student must be able to Describe the various Mediators of Acute Inflammation.</p> <p><b>Objective 2:</b> At the end of the Session the Phase II MBBS student must be able to Analyse the role of various Mediators of Acute Inflammation.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

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PA4.3	Define and describe chronic inflammation including causes, types, non-specific and granulomatous; and enumerate examples of each	<b>Objective 1:</b> At the end of the Session the Phase II MBBS student must be able to Define the causes of Chronic Inflammation.. <b>Objective 2:</b> At the end of the Session the Phase II MBBS student must be able to Describe the features of Granulomatous Inflammation..	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA4.4	Identify and describe acute and chronic inflammation in gross and microscopic specimens	<b>Objective 1:</b> At the end of the Session the Phase II MBBS student must be able to Demonstrate the various features of acute and chronic Inflammation. in gross specimens. <b>Objective 2:</b> At the end of the Session the Phase II MBBS student must be able to Demonstrate the various features of acute and chronic Inflammation. in microscopic slides.	S	SH	Y	DOAP session	Skill assessment			
<b>Topic: Healing and repair</b>		<b>Number of competencies: (01)</b>	<b>Number of procedures that require certification :(NIL)</b>							
PA5.1	Define and describe the process of repair and regeneration including wound healing and its types	<b>Objective 1:</b> At the end of the Session the Phase II MBBS student must be able to Describe the Principles of repair and regeneration following injury. <b>Objective 2:</b> At the end of the Session the Phase II MBBS student must be able to Describe the process of Wound Healing. <b>Objective 3:</b> At the end of the Session the Phase II MBBS student must be able to Enumerate the Types of Repair in the process of Wound Healing.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
<b>Topic: Hemodynamic disorders</b>		<b>Number of competencies: (02)</b>	<b>Number of procedures that require certification :(NIL)</b>							
PA6.1	Define and describe edema, its types, pathogenesis and clinical correlations	<b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to know Definition of edema. <b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to enumerate different types of edema. <b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to describe pulmonary edema. <b>Obective 4.</b> At the end of session of the phase II MBBS students must be able to discuss the pathogenesis of different types of edema <b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to describe renal edema. <b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to discuss about the cardiogenic edema. <b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to differentiate between nephritic and nephrotic edema. <b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to differentiate between exudate and transudate. <b>Objective 9.</b> At the end of session of the phase II MBBS students must be able to correlate clinically the different types of edema.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

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PA6.2	Define and describe hyperemia, congestion, hemorrhage	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to define hyperemia.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to describe hyperemia.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to define congestion.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to discuss congestion.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to differentiate between hyperemia and congestion accurately.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to describe about CVC lung.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to describe about brown induration of lung .</p> <p><b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to discuss about CVC Liver.</p> <p><b>Objective 9.</b> At the end of session of the phase II MBBS students must be able to discuss NUTMEG Liver.</p> <p><b>Objective 10.</b> At the end of session of the phase II MBBS students must be able to discuss CVC Spleen.</p> <p><b>Objective 11.</b> At the end of session of the phase II MBBS students must be able to define GAMNA-GANDY BODY.</p> <p><b>Objective 12.</b> At the end of session of the phase II MBBS students must be able to describe the microscopy of the different types of CVCs.</p> <p><b>Objective 13.</b> At the end of session of the phase II MBBS students must be able to know about hemorrhage.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.3	Define and describe shock, its pathogenesis and its stages	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to define shock</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to classify different types of shock.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to describe the etiology of the different shock.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to discuss the pathogenesis of shock .</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to describe the stages of shock.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to know the morphological effect of shock on various organs.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to define disseminated intravascular coagulation.</p> <p><b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to discuss about the etiology of DIC.</p> <p><b>Objective 9.</b> At the end of session of the phase II MBBS students must be able to describe the pathogenesis of DIC.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

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PA6.4	Define and describe normal haemostasis and the etiopathogenesis and consequences of thrombosis	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to define normal haemostasis.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to discuss about the normal haemostasis.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to define thrombosis.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to discuss about the etiopathogenesis of thrombosis.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to differentiate between the arterial and venous thrombosis.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to list the consequences of thrombosis.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to describe the fate of thrombus.</p> <p><b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to differentiate between antemortem and postmortem clot.</p> <p><b>Objective 9.</b> At the end of session of the phase II MBBS students must be able to describe virchow's triad .</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

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PA6.5	Define and describe embolism and its causes and common types	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to define embolism.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to enumerate the different types of embolus.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to discuss the causes of embolism.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to discuss embolism.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to define paradoxical embolus.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to define retrograde embolus.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to discuss about arterial thrombolism.</p> <p><b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to discuss in detail about venous thrombolism.</p> <p><b>Objective 9.</b> At the end of session of the phase II MBBS students must be able to discuss about pulmonary thromboembolism.</p> <p><b>Objective 10.</b> At the end of session of the phase II MBBS students must be able to describe the histological features of pulmonary thromboembolism.</p> <p><b>Objective 11.</b> At the end of session of the phase II MBBS students must be able to discuss in detail about decompression sickness.</p> <p><b>Objective 12.</b> At the end of session of the phase II MBBS students must be able to describe amniotic fluid embolism.</p> <p><b>Objective 13.</b> At the end of session of the phase II MBBS students must be able to describe the consequences of embolism.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

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PA6.6	Define and describe Ischaemia/infarction its types, etiology, morphologic changes and clinical effects	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to define ischaemia.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to define infarction.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to describe the etiology of the infarction.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to describe the factors determining the severity.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to list the various types of the infarct.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to differentiate between red and white infarct accurately.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to discuss the pathogenesis of infarction.</p> <p><b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to describe about the morphological changes in various organs in infarction.</p> <p><b>Objective 9.</b> At the end of session of the phase II MBBS students must be able to describe the infarction of lung.</p> <p><b>Objective 10.</b> At the end of session of the phase II MBBS students must be able to describe the infarction of kidney.</p> <p><b>Objective 11.</b> At the end of session of the phase II MBBS students must be able to describe the clinical effects of infarction/ ischemia.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA6.7	Identify and describe the gross and microscopic features of infarction in a pathologic specimen	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to identify a pathologic specimen in case of infarction.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to describe the gross features of infarction in a pathologic specimen.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to describe the microscopic features of infarction in a pathologic specimen.</p>	S	SH	Y	DOAP session	Skill Assessment			

Topic: Neoplastic disorders

Number of competencies: (05)

Number of procedures that require certification: (NIL)



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PA7.1	Define and classify neoplasia. Describe the characteristics of neoplasia including gross, microscopy, biologic, behaviour and spread. Differentiate between benign from malignant neoplasms	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define neoplasia.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to distinguish true neoplasms from non-neoplastic tumour like masses.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to distinguish benign tumors from malignant tumors.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to delineate the rationale behind taxonomy of neoplasms in relation to their cell of origin, gross &amp; microscopic appearance and clinical behavior.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to discuss mixed tumors on the basis of their origin and morphologic appearance.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to accurately delineate various degrees of differentiation of different tumors with clear understanding of discrete microscopic features to define anaplasia</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to differentiate well differentiated tumors from moderately and poorly differentiated tumors by histological examination</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to explain the logical sequence of growth and progression of tumor with acquisition of various attributes viz, invasiveness, self sufficiency in growth, metastatic potential &amp; aberrant antigenic expressivity.</p> <p><b>Objective 9.</b> At the end of the session the phase II MBBS students must be able to discuss metastasis and to demonstrate rationale behind specific routes of spread of various cancers with relevant clinical examples with emphasis on gross and radiological appearances of metastatic tumors.</p> <p><b>Objective 10.</b> At the end of the session the phase II MBBS students must be able to construct and explain logical sequence of molecular mechanisms of metastasis with acquisition of various attributes by tumor cells viz, detachment, invasion into matrix &amp; vasculature, migration and homing.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

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PA7.2	Describe the molecular basis of cancer	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to demonstrate molecular details of carcinogenesis developing from aberrant changes in normal cell division due to mutations in proto-oncogenes &amp; tumor suppressor genes, with relevant clinical examples.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to explain the mechanism and importance of tumor angiogenesis adding a note on chemotherapeutic drugs intervening angiogenesis.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe various metabolic alterations happening in cancer cells with special emphasis on the "Warburg effect"</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA7.3	Enumerate carcinogens and describe the process of carcinogenesis	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define a carcinogen and to identify various categories of carcinogens viz, chemical and microbial carcinogens and to enlist the examples of various carcinogens and cancers caused by them.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to demonstrate molecular mechanisms of chemical carcinogenesis by defining and comparing the role of initiators and promoters in chemical carcinogenesis.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to identify various chemical carcinogens, segregating them as promoters and initiators and to recognize various specific cancers caused by them.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to construct and explain logical sequence of molecular events in chemical carcinogenesis.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to establish different types of radiations as causative agents of cancers and to explain molecular mechanisms behind radiation carcinogenesis viz., formation of free radicals, pyrimidine dimers etc.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to enlist various cancers caused by radiation exposure.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to establish different types of radiations as causative agents of cancers and to establish various microbes as causative agents of cancers and to describe different molecular mechanisms of microbial carcinogenesis viz., cancers caused by HTLV, HPV, EBV, HBV, HCV, HHV8 &amp; H. pylori.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			

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PA7.4	Describe the effects of tumor on the host including paraneoplastic syndrome	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to determine the common clinical presentations (signs, symptoms &amp; physical examination findings) in cancers.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to determine &amp; explain clinical implications of various tumors viz, local effects, hormone production, hematological manifestations etc.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to illustrate and diagnose paraneoplastic syndromes, identifying various cancers manifesting as paraneoplastic syndrome and to explain the molecular pathogenesis of various paraneoplastic syndromes.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to diagnose cancer cachexia and to summarize molecular details contributing for cancer cachexia.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA7.5	Describe immunology and the immune response to cancer	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe tumour immunity.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to summarize various mechanisms by which tumors evade immune system.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce			

**Topic: Basic diagnostic cytology**

**Number of competencies: (03)**

**Number of procedures that require certification: (NIL)**

PA8.1	Describe the diagnostic role of cytology and its application in clinical care	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to outline indications of various cytological techniques.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe interpretations of FNAC in diagnosing and follow up of various tumors.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe interpretations of FNAC.</p>	K	KH	Y	Lecture, Small group discussion		Written/ Viva voce		General Surgery
PA8.2	Describe the basis of exfoliative cytology including the technique & stains used	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the principle of exfoliative cytology.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to Explain the methods of sample collection for exfoliative cytology.</p>	K	KH	Y	Lecture, Small group discussion		Written/ Viva voce/ Skill assessment		General Surgery
PA8.3	Observe a diagnostic cytology and its staining and interpret the specimen	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to demonstrate the technique of FNAC.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to demonstrate the technique of obtaining Cervical smear.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to demonstrate the steps of MGG staining..</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to demonstrate the steps of PAP staining</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to deinterpret a PAP smear.</p>	S	KH	Y	DOAP session		Skill assessment		

**Topic: Immunopathology and AIDS**

**Number of competencies:(07)**

**Number of procedures that require certification: (NIL)**

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA9.1	Describe the principles and mechanisms involved in immunity	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe various cells of immunity.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe innate immunity.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe cellular immunity.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe humoral immunity.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	Microbiology
PA9.2	Describe the mechanism of hypersensitivity reactions	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe mechanism of hypersensitivity reactions.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to classify hypersensitivity reactions.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to differentiate between various types of hypersensitivity reactions.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe delayed hypersensitivity reactions.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA9.3	Describe the HLA system and the immune principles involved in transplant and mechanism of transplant rejection	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe HLA system.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to enumerate HLA related diseases.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe types of transplants.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe mechanism of transplant rejection.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe the principles of immunity involved in transplant rejection.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA9.4	Define autoimmunity. Enumerate autoimmune disorders	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define autoimmunity.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to enumerate autoimmune disorders.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe mechanism of autoimmunity.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA9.5	Define and describe the pathogenesis of systemic Lupus Erythematosus	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define Systemic Lupus Erythematosus.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe the pathogenesis of Systemic Lupus Erythematosus.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe clinical features of Systemic Lupus Erythematosus.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe morphological changes due to Systemic Lupus Erythematosus in kidney.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe laboratory diagnosis of Systemic Lupus Erythematosus in kidney.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA9.6	Define and describe the pathogenesis and pathology of HIV and AIDS	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define AIDS.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe structure of HIV.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe life cycle of HIV.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe morphological changes due to HIV in various organs.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe diagnosis of AIDS.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA9.7	Define and describe the pathogenesis of other common autoimmune diseases	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to enumerate autoimmune diseases.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of sjogren syndrome.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

**Topic: Infections and Infestations**

**Number of competencies:(04)**

**Number of procedures that require certification:(NIL)**

PA10.1	Define and describe the pathogenesis and pathology of malaria	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of Malaria.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to discuss life cycle of plasmodium.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss pathological changes in Malaria.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss laboratory diagnosis of Malaria.</p>	K	KH	Y	Lecture, Small group discussion		Written/ Viva voce	General Medicine	Microbiology
PA10.2	Define and describe the pathogenesis and pathology of cysticercosis	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of cysticercosis.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe life cycle of tapeworm.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss pathological changes in cysticercosis.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss laboratory diagnosis of cysticercosis.</p>	K	KH	Y	Lecture, Small group discussion		Written/ Viva voce	General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA10.3	Define and describe the pathogenesis and pathology of leprosy	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to classify leprosy.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to discuss pathogenesis of leprosy.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss histopathological features in tuberculoid leprosy.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss histopathological features in lepromatous leprosy.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to differentiate between tuberculoid and lepromatous leprosy.</p>	K	KH	Y	Lecture, Small group discussion		Written/ Viva voce	General Medicine	Microbiolog y
PA10.4	Define and describe the pathogenesis and pathology of common bacterial, viral, protozoal and helminthic diseases	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis mechanisms of infectious disease.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to categorize infective agent.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of common bacterial infection.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss pathological features of bacterial infection.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to discuss special stain for diagnosis of bacterial infection.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of viral infection.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to discuss pathological features in viral infection.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of fungal infections.</p> <p><b>Objective 9.</b> At the end of the session the phase II MBBS students must be able to discuss histopathological features of fungal infections.</p> <p><b>Objective 10.</b> At the end of the session the phase II MBBS students must be able to discuss special stain for diagnosis of fungal infection.</p> <p><b>Objective 11.</b> At the end of the session the phase II MBBS students must be able to discuss fungal infections in Immunosuppressive conditions.</p> <p><b>Objective 12.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of parasitic infestations.</p> <p><b>Objective 13.</b> At the end of the session the phase II MBBS students must be able to discuss pathological changes in infestations.</p>	K	KH	N	Lecture, Small group discussion		Written/ Viva voce	General Medicine	Microbiolog y

Topic: Genetic and paediatric diseases

Number of competencies: (03)

Number of procedures that require certification :(NIL)

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA11.1	Describe the pathogenesis and features of common cytogenetic abnormalities and mutations in childhood	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to discuss genetic mechanisms of developmental abnormalities.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe type of mutations.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss different inheritance pattern.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss genetic diseases of enzyme function.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to discuss glucogen storage disease .</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to discuss pathogenesis of familial hypercholesterolemia.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to discuss chromosomal abnormalities.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to discuss autosomal disorders.</p> <p><b>Objective 9.</b> At the end of the session the phase II MBBS students must be able to discuss sex chromosome disorders.</p> <p><b>Objective 10.</b> At the end of the session the phase II MBBS students must be able to discuss multifactorial inheritance.</p> <p><b>Objective 11.</b> At the end of the session the phase II MBBS students must be able to describe how environmental factors interact with genetic factors to produce disease.</p> <p><b>Objective 12.</b> At the end of the session the phase II MBBS students must be able to describe the pathophysiological mechanisms of mitochondrial inheritance.</p> <p><b>Objective 13.</b> At the end of the session the phase II MBBS students must be able to discuss diagnosis of genetic disease.</p>	K	KH	N	Lecture, Small group discussion		Written/ Viva voce	Pediatrics	
PA11.2	Describe the pathogenesis and pathology of tumor and tumour- like conditions in infancy and childhood	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe tumor like conditions in childhood.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to classify embryonic tumors of infancy.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss Wilms tumors.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss medulloblastoma.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to discuss neuroblastoma.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to discuss retinoblastoma.</p>	K	KH	N	Lecture, Small group discussion		Written/ Viva voce	Pediatrics	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA11.3	Describe the pathogenesis of common storage disorders in infancy and childhood	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to enumerate common storage disorders in infancy and childhood.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to discuss in Neimann Pick diseases.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss Gaucher's diseases.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss Tay Sachs diseases.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to discuss glycogen storage.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to discuss Pheyl ketonuria diseases.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to discuss Alkaptonuria diseases.</p>	K	KH	N	Lecture, Small group discussion		Written/ Viva voce	Pediatrics	
<b>Topic: Environmental and nutritional diseases</b>			<b>Number of competencies: (03)</b>		<b>Number of procedures that require certification: (NIL)</b>					
PA12.1	Enumerate and describe the pathogenesis of disorders caused by air pollution, tobacco and alcohol	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to enumerate the disorders caused by air pollution.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to discuss the pathogenesis of disorders caused by air pollution.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss the pathogenesis changes in the organ due to air pollution.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to enumerate the disorder caused by tobacco use .</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to discuss the pathogenesis of tobacco abuse.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to discuss the resultant pathogocial changes in affected organs due to tobacco abuse.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to enumerate the disorders caused by alcohol use.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to discuss the pathogenesis of disorder by alcohol use.</p> <p><b>Objective 9.</b> At the end of the session the phase II MBBS students must be able to discuss pathological patterns in effected organs caused by alcohol use.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Community Medicine



Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA12.2	Describe the pathogenesis of disorders caused by protein calorie malnutrition and starvation	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the pathogenesis caused by protein energy malnutrition.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to discuss the pathological changes at the cellular level due to protein energy malnutrition.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss the pathological changes at tissue level due to protein energy malnutrition.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, Pediatrics	
PA12.3	Describe the pathogenesis of obesity and its consequences	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the etiological factors responsible for obesity.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to discuss the pathogenesis of obesity.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe common clinical consequences of obesity.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
<b>Topic: Introduction to haematology</b>		<b>Number of competencies: (05)</b>	<b>Number of procedures that require certification:(NIL)</b>							
PA13.1	Describe hematopoiesis and extramedullary hematopoiesis	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to what is hematopoiesis.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to what are the sites of blood formation during foetal development.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to what is stem cells.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to what are the steps of haematopoiesis.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to enumerate the hormones required for haematopoiesis.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to enumerate the cytokines required for haematopoiesis.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to describe what is extramedullary haematopoiesis.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to enumerate the causes of extramedullary haematopoiesis.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA13.2	Describe the role of anticoagulants in hematology	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to enumerate the anticoagulants used in hematology.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe is the principle of the following anticoagulant.</p> <p>a) EDTA b) Sodium Citrate c) Heparin d) Double Oxalate</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to enumerate the uses of EDTA.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to tell in which concentration EDTA should be used.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe which is preferred anticoagulant for hemogram.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to enumerate the tests where sodium citrate is used as anticoagulant.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to tell what are the used of Heparin.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to tell what are the disadvantages of Heparin.</p> <p><b>Objective 9.</b> At the end of the session the phase II MBBS students must be able to describe are the disadvantages of double oxalate.</p> <p><b>Objective 10.</b> At the end of the session the phase II MBBS students must be able to differentiate between pleasma &amp; serum.</p> <p><b>Objective 11.</b> At the end of the session the phase II MBBS students must be able to describe why liquid anticoagulant is not used for CBC.</p> <p><b>Objective 12.</b> At the end of the session the phase II MBBS students must be able to descirbe what does the stopper colour indicates, give example</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.3	Define and classify anemia	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define anemia.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to list normal hemoglobine levels.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe actiological classification of anemia.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe red cell indices</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to tell the normal value for various red cell indices.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe the morphological classification of anemia.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA13.4	Enumerate and describe the investigation of anemia	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to Enumerate the investigations required for diagnosis of anemia.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe method for estimation of Hb .</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe method for estimation of packed cell volume.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe method for R.B.C. count.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to which stain is used for reticulocyte count.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe red cell morphological features as observed in peripheral blood smear.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA13.5	Perform, Identify and describe the peripheral blood picture in anemia	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to stain the smear by leishman stain.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to identify the type of anemia.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe the peripheral blood picture.</p>	S	SH	Y	DOAP session	Skill assessment		General Medicine	

**Topic: Microcytic anemia**

**Number of competencies: (03)**

**Number of procedures that require certification :(NIL)**

PA14.1	Describe iron metabolism	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to enumerate sources of Iron.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe the Iron distribution in the body.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to list the substances which increase absorption of Iron.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to enumerate the substances which decrease Iron absorption.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe the steps involved in iron metabolism.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry	
PA14.2	Describe the etiology, investigations and differential diagnosis of microcytic hypochromic anemia	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the etiology of microcytic hypochromic anemia.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to enumeate the investigations required to diagnosis a case of microcystic hypochrmic anemia</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to enumerate the differential diagnosis of microcytic hypochromic anemia.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to differentiate between different causes of microcytic hypochromic anemia.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA14.3	Identify and describe the peripheral smear in microcytic anemia	<b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to identify the stained smear. <b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe morphological features of red cells, white cells, platelets in the peripheral blood smear.	S	SH	Y	DOAP session	Skill assessment		General Medicine	

**Topic: Macrocytic anemia**

**Number of competencies: (04)**

**Number of procedures that require certification :(NIL)**

PA15.1	Describe the metabolism of Vitamin B12 and the etiology and pathogenesis of B12 deficiency	<b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to list sources of vitamin B12. <b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to know daily requirement of vitamin B12. <b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe mechanism of absorption of vitamin B12. <b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to enumerate causes of vitamin B12 deficiency. <b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe role of vitamin B12 in cell division. <b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to define ineffective erythropoiesis . <b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to define dyserythropoiesis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA15.2	Describe laboratory investigations of macrocytic anemia	<b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to discuss RBC indices in macrocytic anemia. <b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to discuss role of reticulocyte count in macrocytic anemia. <b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe morphological changes in RBC, WBC and platelet. <b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe Bone marrow findings in macrocytic anemia. <b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to list serological findings in macrocytic anemia. <b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe schilling test to know cause of vitamin B12 deficiency.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA15.3	Identify and describe the peripheral blood picture of macrocytic anemia	<b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to identify morphological changes in RBC in macrocytic anemia. <b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to identify morphological changes in WBC in macrocytic anemia	S	SH	Y	DOAP session	Skill assessment			

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA15.4	Enumerate the differences and describe the etiology and distinguishing features of megaloblastic and non-megaloblastic macrocytic anemia	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to enumerate causes of non megaloblastic macrocytic anemia.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to enumerate causes of megaloblastic macrocytic anemia.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to differentiate in megaloblastic and non megaloblastic anemia.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
<b>Topic: Hemolytic anemia</b>										
<b>Number of competencies: (04)</b>			<b>Number of procedures that require certification: (01)</b>							
PA16.1	Define and classify hemolytic anemia	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to discuss RBC life span.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to define haemolytic anemia.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss intravascular hemolysis.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss extravascular hemolysis.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to enumerate congenital causes of haemolytic anemia.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to enumerate acquired causes of haemolytic anemia</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA16.2	Describe the pathogenesis and clinical features and hematologic indices of hemolytic anemia	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to explain the mechanism by which anemia is produced.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe clinical features of haemolytic anemia.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss RBC indices in haemolytic anemia.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA16.3	Describe the pathogenesis, features, hematologic indices and peripheral blood picture of sickle cell anemia and thalassemia	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define hemoglobinopathies</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to define qualitative disorders of haemoglobin.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to define quantitative disorder of haemoglobin.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe structural abnormality in haemoglobin.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to enumerate sickle syndromes.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to discuss basic molecular lesion in sickling.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to describe mechanism of sickling.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to enumerate factors determining rate of sickling.</p> <p><b>Objective 9.</b> At the end of the session the phase II MBBS students must be able to describe vaso-occlusive phenomenon in sickling.</p> <p><b>Objective 10.</b> At the end of the session the phase II MBBS students must be able to enumerate constitutional symptoms in sickle cell anemia.</p> <p><b>Objective 11.</b> At the end of the session the phase II MBBS students must be able to describe peripheral smear findings of sickle cell anemia.</p> <p><b>Objective 12.</b> At the end of the session the phase II MBBS students must be able to describe sickling test.</p> <p><b>Objective 13.</b> At the end of the session the phase II MBBS students must be able to describe Hb electrophoresis in sickle cell anemia.</p> <p><b>Objective 14.</b> At the end of the session the phase II MBBS students must be able to enumerate variants of haemoglobin.</p> <p><b>Objective 15.</b> At the end of the session the phase II MBBS students must be able to discuss regional distribution of thalassaemia.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	



Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA16.4	Describe the etiology pathogenesis, hematologic indices and peripheral blood picture of Acquired hemolytic anemia	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define acquired haemolytic anemia.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to enumerate causes of acquired haemolytic anemia.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe role of antibody in immunohemolytic anemia.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to enumerate diseases affecting immune system leading to immunohemolytic anemia.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to enumerate drugs causing immunohemolytic anemia.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of microangiopathic haemolytic anemia.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to describe effect of toxins on RBC survival.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to describe defect in RBC membrane in paroxysmal nocturnal hemoglobinuria.</p> <p><b>Objective 9.</b> At the end of the session the phase II MBBS students must be able to describe role of complement in paroxysmal nocturnal hemoglobinuria.</p> <p><b>Objective 10.</b> At the end of the session the phase II MBBS students must be able to enumerate clinical features in various types of acquired haemolytic anemia.</p> <p><b>Objective 11.</b> At the end of the session the phase II MBBS students must be able to discuss findings of hemolysis on smear.</p> <p><b>Objective 12.</b> At the end of the session the phase II MBBS students must be able to discuss various stages of malarial parasite on smear.</p> <p><b>Objective 13.</b> At the end of the session the phase II MBBS students must be able to describe role of reticulocyte count in haemolytic anemia</p> <p><b>Objective 14.</b> At the end of the session the phase II MBBS students must be able to describe coombs test.</p> <p><b>Objective 15.</b> At the end of the session the phase II MBBS students must be able to describe hams test.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	



Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA16.5	Describe the peripheral blood picture in different hemolytic anaemias	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe peripheral blood picture of thalassaemia.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe peripheral blood picture of sickle cell anemia.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe peripheral blood picture of G6PD different.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe peripheral blood picture of Autoimmune hemolytic anemia.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe peripheral blood picture of malarial parasite on peripheral smear hemolytic anemia.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA16.6	Prepare a peripheral blood smear and identify hemolytic anaemia from it	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe technique to prepare peripheral smear.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe features of ideal peripheral smear.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to define romanowsky stains.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to enumerate various stains used to stain peripheral smear.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe preparation of some commonly used romanowsky stains.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to define buffer.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to perform leishman staining.</p>	S	P	Y	DOAP session	Skill assessment	1		
PA16.7	Discribe the correct technique to perform a cross match	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe major and minor cross match.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe technique to perform cross match.</p>	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce			

Topic: Aplastic anemia

Number of competencies: (02)

Number of procedures that require certification: (NIL)

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA 17.1	Enumerate the etiology, pathogenesis and findings in aplastic anemia	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define bone marrow failure.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to enumerate causes of pancytopenia.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to define aplastic anemia.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to classify aplastic anemia.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of aplastic anemia.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to enumerate clinical features of aplastic anemia.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to describe hematological findings in aplastic anemia.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to describe findings of bone marrow examination in aplastic anemia</p>	K	K	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA17.2	Enumerate the indications and describe the findings in bone marrow aspiration and biopsy	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to enumerate indications of bone marrow aspiration.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to enumerate indications of bone marrow biopsy.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to enumerate contraindications of bone marrow examination</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe cellularity of bone marrow in aspirate smears.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe erythroid series</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe myeloid series.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to describe megakaryocytes.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to define M:E ratio.</p> <p><b>Objective 9.</b> At the end of the session the phase II MBBS students must be able to describe parasites in bone marrow.</p> <p><b>Objective 10.</b> At the end of the session the phase II MBBS students must be able to describe adequacy criteria in bone marrow biopsy specimen.</p> <p><b>Objective 11.</b> At the end of the session the phase II MBBS students must be able to discuss normal architecture of marrow.</p> <p><b>Objective 12.</b> At the end of the session the phase II MBBS students must be able to discuss bone marrow findings of various haematological disorders.</p>	K	K	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Topic: Leukocyte disorders

Number of competencies: (02)

Number of procedures that require certification:(NIL)

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA18.1	Enumerate and describe the causes of leucocytosis leucopenia lymphocytosis and leukemoid reactions	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe leucocytosis.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to enumerate causes of neutophilia.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to enumerate causes of eosinophilia.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to enumerate causes of monocytosis.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to enumerate causes of basophilia.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe leucopenia.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to enumerate causes of lymphocytosis.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to describe leukemoid reaction.</p> <p><b>Objective 9.</b> At the end of the session the phase II MBBS students must be able to describe types of leukemoid reactions.</p>	K	KH	Y	Lecture, Small group discussion			Written/ Viva voce	

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Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA`18.2	Describe the etiology, genetics, pathogenesis classification, features, hematologic features of acute and chronic leukemia	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define leukemia.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe types of leukemia.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe acute leukemia.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe etiology of acute leukemia.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able describe genetics of acute leukemia.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able describe pathogenesis of acute leukemia.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to describe FAB classification of AML.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to describe WHO classification of AML.</p> <p><b>Objective 9.</b> At the end of the session the phase II MBBS students must be able to describe FAB classification of ALL.</p> <p><b>Objective 10.</b> At the end of the session the phase II MBBS students must be able to describe WHO classification of ALL.</p> <p><b>Objective 11.</b> At the end of the session the phase II MBBS students must be able to describe features of acute leukemia.</p> <p><b>Objective12.</b> At the end of the session the phase II MBBS students must be able to describe hematological features of acute leukemia.</p> <p><b>Objective 13.</b> At the end of the session the phase II MBBS students must be able to describe laboratory diagnosis of acute leukemia.</p> <p><b>Objective 14.</b> At the end of the session the phase II MBBS students must be able to classify myeloproliferative disorders.</p> <p><b>Objective 15.</b> At the end of the session the phase II MBBS students must be able to describe types of chronic leukemia.</p>	K	KH	Y	Lecture, Small group discussion			Written/ Viva voce	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
		<p><b>Objective 16.</b>At the end of the session the phase II MBBS students must be able to describe etiology of chronic leukemia.</p> <p><b>Objective 17.</b>At the end of the session the phase II MBBS students must be able to describe genetics of chronic leukemia.</p> <p><b>Objective 18.</b>At the end of the session the phase II MBBS students must be able to describe pathogenesis of chronic leukemia.</p> <p><b>Objective 19.</b> At the end of the session the phase II MBBS students must be able to describe phases of CML.</p> <p><b>Objective 20.</b> At the end of the session the phase II MBBS students must be able to describe features of chronic leukemia.</p> <p><b>Objective 21.</b> At the end of the session the phase II MBBS students must be able to describe hematological features of chronic leukemia.</p> <p><b>Objective 22.</b> At the end of the session the phase II MBBS students must be able to describe laboratory diagnosis of CML.</p> <p><b>Objective 23.</b> At the end of the session the phase II MBBS students must be able to differentiate between CML &amp; leukemoid reaction.</p> <p><b>Objective 24.</b> At the end of the session the phase II MBBS students must be able to describe polycythemia.</p> <p><b>Objective 25.</b> At the end of the session the phase II MBBS students must be able to classify polycythemia.</p> <p><b>Objective 26.</b> At the end of the session the phase II MBBS students must be able to describe essential thrombocythemia.</p> <p><b>Objective 27.</b>At the end of the session the phase II MBBS students must be able to describe idiopathic myelofibrosis.</p> <p><b>Objective 28.</b>At the end of the session the phase II MBBS students must be able</p>								
<b>Topic: Lymph node and spleen</b>		<b>Number of competencies: (07)</b>	<b>Number of procedures that require certification: (NIL)</b>							
PA19.1	Enumerate the causes and describe the differentiating features of lymphadenopathy	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe lymphadenopathy.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to enumerate causes of lymphadenopathy.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe granuloma.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe causes of granulomatous lymphadenitis.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe differentiating features of lymphadenopathy.</p>	K	KH	Y	Lecture, Small group discussion			Written/ Viva voce	General Surgery
PA19.2	Describe the pathogenesis and pathology of tuberculous lymphadenitis	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of tubercular lymphadenitis.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe pathology of tubercular lymphadenitis.</p>	K	KH	Y	Lecture, Small group discussion			Written/ Viva voce	General Surgery

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA19.3	Identify and describe the features of tuberculous lymphadenitis in a gross and microscopic specimen	<b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to identify tubercular lymphadenitis in a gross specimen. <b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to identify tubercular lymphadenitis microscopically.	S	SH	Y	DOAP session			Skill assessment	
PA19.4	Describe and discuss the pathogenesis, pathology and the differentiating features of Hodgkin's and non-Hodgkin's lymphoma	<b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define lymphoma. <b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe types of lymphoma. <b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of Hodgkin's lymphoma. <b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to classify Hodgkin's lymphoma. <b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe pathology of Hodgkin's lymphoma. <b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of Non-Hodgkin's lymphoma. <b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to classify Non- Hodgkin's lymphoma. <b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to describe pathology of Non-Hodgkin's lymphoma. <b>Objective 9.</b> At the end of the session the phase II MBBS students must be able describe differentiating features of Hodgkin's lymphoma and Non-Hodgkin's lymphoma.	K	KH	Y	Lecture, Small group discussion			Written/ Viva voce	General Surgery
PA19.5	Identify and describe the features of Hodgkin's lymphoma in a gross and microscopic specimen	<b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to identify Hodgkin's lymphoma in a gross specimen. <b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to identify Hodgkin's lymphoma microscopically.	S	SH	Y	DOAP session			Skill assessment	General Surgery
PA19.6	Enumerate and differentiate the causes of splenomegaly	<b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe splenomegaly. <b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to enumerate causes of splenomegaly. <b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe differentiating features of splenomegaly.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA19.7	Identify and describe the gross specimen of an enlarged spleen	<b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to identify gross specimen of enlarged spleen.	S	SH	Y	DOAP session	Skill assessment			

Topic: Plasma cell disorders

Number of competencies : (01)

Number of procedures that require certification: (NIL)

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA20.1	Describe the features of plasma cell myeloma	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe plasma cells.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe causes of plasma cell leukemia.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe features of plasma cell myeloma.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe laboratory diagnosis of plasma cell myeloma.</p>	S	SH	Y	DOAP session	Skill assessment			
<b>Topic: Hemorrhagic disorders</b> <span style="margin-left: 150px;"><b>Number of competencies : (05)</b></span> <span style="margin-left: 150px;"><b>Number of procedures that require certification: (NIL)</b></span>										
PA21.1	Describe normal hemostasis	<b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Describe normal hemostasis	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA21.2	Classify and describe the etiology, pathogenesis and pathology of vascular and platelet disorders including ITP and haemophilia's	<p><b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Classify vascular and platelet disorders.</p> <p><b>Objective 2.</b> At the end of the Session the Phase II MBBS student must be able to Describe the etiology, pathogenesis and pathology of vascular and platelet disorders.</p> <p><b>Objective 3.</b> At the end of the Session the Phase II MBBS student must be able to Describe the etiology, pathogenesis and pathology of ITP and haemophilias.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA21.3	Differentiate platelet from clotting disorders based on the clinical and hematologic features	<b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Demonstrate platelet from clotting disorders based on the clinical and hematologic features.	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA21.4	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of disseminated intravascular	<b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Define disseminated intravascular coagulation	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA21.5	Define and describe disseminated intravascular coagulation, its laboratory findings and diagnosis of Vitamin K deficiency	<p><b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Describe laboratory findings and diagnosis of disseminated intravascular coagulation.</p> <p><b>Objective 2.</b> At the end of the Session the Phase II MBBS student must be able to Discuss the laboratory findings and diagnosis of Vitamin K deficiency.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
<b>Topic: Blood banking and transfusion</b> <span style="margin-left: 150px;"><b>Number of competencies: (07)</b></span> <span style="margin-left: 150px;"><b>Number of procedures that require certification: (NIL)</b></span>										

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA22.1	Classify and describe blood group systems (ABO and RH)	<b>Objective 1:</b> At the end of the Session the Phase II MBBS student must be able to Describe the various blood group systems (ABO and RH)	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			
PA22.2	Enumerate the indications, describe the principles, enumerate and demonstrate the steps of compatibility testing	<b>Objective 1:</b> At the end of the Session the Phase II MBBS student must be able to Describe the steps of compatibility testing. <b>Objective 2:</b> At the end of the Session the Phase II MBBS student must be able to Demonstrate steps of compatibility testing	S	SH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA22.4	Enumerate blood components and describe their clinical uses	<b>Objective 1:</b> At the end of the Session the Phase II MBBS student must be able to Enumerate the various blood components. <b>Objective 2:</b> At the end of the Session the Phase II MBBS student must be able to describe the clinical use of the various blood components	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery, General Medicine	
PA22.5	Enumerate and describe infections transmitted by blood transfusion	<b>Objective 1:</b> At the end of the Session the Phase II MBBS student must be able to Enumerate the various infections transmitted by blood transfusion. <b>Objective 2:</b> At the end of the Session the Phase II MBBS student must be able to Describe the various infections transmitted by blood transfusion.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			Microbiology
PA22.6	Describe transfusion reactions and enumerate the steps in the investigation of a transfusion reaction	<b>Objective 1:</b> At the end of the Session the Phase II MBBS student must be able to Describe the transfusion reactions. <b>Objective 2:</b> At the end of the Session the Phase II MBBS student must be able to Enumerate the steps in the investigation of transfusion reactions.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA22.7	Enumerate the indications and describe the principles and procedure of autologous transfusion	<b>Objective 1:</b> At the end of the Session the Phase II MBBS student must be able to Enumerate the indications of autologous transfusion. <b>Objective 2:</b> At the end of the Session the Phase II MBBS student must be able to Describe the indications, principles and procedure of autologous transfusion.	K	KH	Y	Lecture, Small group discussion		Written/ Viva voce		
<b>Topic: Clinical Pathology</b>		<b>Number of competencies: (03)</b>	<b>Number of procedures that require certification: (NIL)</b>							
PA23.1	Describe abnormal urinary findings in disease states and identify and describe common urinary abnormalities in a clinical specimen	<b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe abnormal urinary finding in disease states. <b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to identify common urinary abnormalities in a clinical specimen. <b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe common urinary abnormalitis in clinical specemen.	S	SH	Y	DOAP session		Skill Assessment		



Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA23.2	Describe abnormal findings in body fluids in various disease states	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe abnormal urinary finding in body fluids.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to differentiate between transudate and exudate.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe abnormal CSF findings.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to differentiate between viral, bacterial and tubercular meningitis.</p>	K	KH	Y	Lecture, Small group discussion		Written/ Viva voce		
PA23.3	Describe and interpret the abnormalities in a panel containing semen analysis, thyroid function tests, renal function tests or liver function tests	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to semen analysis.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to interpret abnormal semen analysis report.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss normal thyroid function test.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to interpret abnormal thyroid function test.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe the normal renal function test.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe interpret abnormal renal function test.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to discuss normal liver function test.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to interpret abnormal liver function test.</p>	S	SH	Y	DOAP session		Skill Assessment		
<b>Topic: Gastrointestinal tract</b> <span style="margin-left: 150px;"><b>Number of competencies: (07)</b></span> <span style="margin-left: 150px;"><b>Number of procedures that require certification: (NIL)</b></span>										
PA24.1	Describe the etiology, pathogenesis, pathology and clinical features of oral cancers	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the etiopathogenesis of oral cancers.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe the types of oral cancers.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe clinical features of oral cancers.</p>	K	KH	N	Lecture, Small group discussion		Written/ Viva voce		Dentistry
PA24.2	Describe the etiology, pathogenesis, pathology, microbiology, clinical and microscopic features of peptic ulcer disease	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the etiology of peptic ulcer disease.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe the role of Helicobacter pylori in peptic ulcer disease.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe the pathogenesis of peptic ulcer disease.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe clinicopathological features of peptic ulcer disease.</p>	K	KH	Y	Lecture, Small group discussion		Written/ Viva voce		General Medicine

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA24.3	Describe and identify the microscopic features of peptic ulcer	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the microscopic features of peptic ulcer disease.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to differentiate between gastric ulcer and duodenal ulcer.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe the pathogenesis of peptic ulcer disease.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe complications of peptic ulcer disease.</p>	S	SH	Y	Lecture, Small group discussion		Written/ Viva voce		General Medicine
PA24.4	Describe and etiology and pathogenesis and pathologic features of carcinoma of the stomach	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the etiology of carcinoma of the stomach.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe the pathogenesis of carcinoma of the stomach.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe clinicopathological features of carcinoma of the stomach</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.5	Describe and etiology and pathogenesis and pathologic features of Tuberculosis of the intestine	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the etiology of Tuberculosis of the intestine.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe the pathogenesis of Tuberculosis of the intestine.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe clinicopathological features of Tuberculosis of the intestine.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.6	Describe and etiology and pathogenesis and pathologic and distinguishing features of Inflammatory bowel disease	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the etiology of Inflammatory bowel disease.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe the pathogenesis of Inflammatory bowel disease.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe clinicopathological features of Inflammatory bowel disease.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to differentiate between ulcerative colitis and Chron's disease.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA24.7	Describe the etiology, pathogenesis, pathology and distinguishing features of carcinoma of the colon	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the etiology of carcinoma of colon.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe the pathogenesis of carcinoma of colon.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe clinicopathological features of carcinoma of colon.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to enumerate various types of carcinoma of colon.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

**Topic: Hepatobiliary system**

**Number of competencies: (07)**

**Number of procedures that require certification : (01)**

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA25.1	Describe bilirubin metabolism, enumerate the etiology and pathogenesis of jaundice, distinguish between direct and indirect hyperbilirubinemia	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define hyperbilirubinemia.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to highlight the causes of hyperbilirubinemia.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss the pathophysiology of hyperbilirubinemia.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to explain the difference between conjugated and unconjugated hyperbilirubinemia.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to Differentiate between physiological and pathological jaundice.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to distinguish between direct and indirect hyperbilirubinemia.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Biochemistry, General Medicine	
PA25.2	Describe the pathophysiology and pathologic changes seen in hepatic failure and their clinical manifestations, complications and consequences	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the functions of the liver.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to enumerate Causes of hepatic failure.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to explain how alterations in liver function lead to the clinical manifestations seen in liver failure.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to explain complications and consequences of liver failure.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.3	Describe the etiology and pathogenesis of viral and toxic hepatitis: distinguish the causes of hepatitis based on the clinical and laboratory features. Describe the pathology, complications and consequences of hepatitis	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to compare hepatitis A, B, C, D, and E in terms of source of infection, incubation period, acute disease manifestations, development of chronic disease, and the carrier state</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to explain the pathology of hepatitis and differentiate between acute and chronic hepatitis.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe the clinicopathologic spectrum of viral hepatitis</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe the complications and consequences of hepatitis.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to elaborate the etiology, pathology, clinical manifestations and morphology of drug-induced, autoimmune hepatitis and Reye's syndrome</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to Describe the etiopathogenesis &amp; clinical manifestation of Wilson's disease, <math>\alpha</math>-1 Antitrypsin deficiency, Hemochromatosis and NASH.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA25.4	Describe the pathophysiology, pathology and progression of alcoholic liver disease including cirrhosis	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to discuss the incidence of alcoholic liver disease and explain how the liver metabolizes alcohol.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to summarize the three patterns of injury that occur with alcohol-induced liver disease and their morphology.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to characterize the liver changes that occur with cirrhosis.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to explain the pathology, morphology and clinical manifestations of cirrhosis.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.5	Describe the etiology, pathogenesis and complications of portal hypertension	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the pathology of portal hypertension.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to relate the development of ascites, esophageal varices, and splenomegaly to portal hypertension.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, General Surgery	
PA25.6	Interpret liver function and viral hepatitis serology panel. Distinguish obstructive from non-obstructive jaundice based on clinical features and liver function tests	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to enumerate liver function tests.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to interpret liver function tests.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to interpret viral hepatitis serological panel..</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to distinguish obstructive from non-obstructive jaundice based on clinical features and liver function tests</p>	S	P	Y	DOAP session	Skill assessment	1	General Medicine	
<b>Topic: Respiratory system</b>			<b>Number of competencies: (07)</b>			<b>Number of procedures that require certification: (NIL)</b>				
PA26.1	Define and describe the etiology, types, pathogenesis, stages, morphology and complications of pneumonia	<p><b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Describe the etiology of Pneumonia.,</p> <p><b>Objective 2.</b> At the end of the Session the Phase II MBBS student must be able to Classify the types of Pneumonia</p> <p><b>Objective 3.</b> At the end of the Session the Phase II MBBS student must be able to Describe the Pathogenesis of Pneumonia.</p> <p><b>Objective 4.</b> At the end of the Session the Phase II MBBS student must be able to Describe the Stages and Morphology of Pneumonia.</p> <p><b>Objective 5.</b> At the end of the Session the Phase II MBBS student must be able to Enumerate the Complications of Pneumonia.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.2	Describe the etiology, gross and microscopic appearance and complications of lung abscess	<p><b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Describe the etiology of lung abscess.</p> <p><b>Objective 2.</b> At the end of the Session the Phase II MBBS student must be able to Describe the gross and microscopic appearance of lung abscess.</p> <p><b>Objective 3.</b> At the end of the Session the Phase II MBBS student must be able to Describe the complications of lung abscess.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA26.3	Define and describe the etiology, types, pathogenesis, stages, morphology and complications and evaluation of Obstructive airway disease (OAD) and bronchiectasis	<p><b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Define the describe the etiology of Obstructive airway disease (OAD) and bronchiectasis.</p> <p><b>Objective 2.</b> At the end of the Session the Phase II MBBS student must be able to Classify the types of Obstructive airway disease (OAD) and bronchiectasis.</p> <p><b>Objective 3.</b> At the end of the Session the Phase II MBBS student must be able to Describe the Pahogenesis of Obstructive airway disease (OAD) and bronchiectasis.</p> <p><b>Objective 4.</b> At the end of the Session the Phase II MBBS student must be able to Define the describe the Stages and Morphology of Obstructive airway disease (OAD) and bronchiectasis.</p> <p><b>Objective 5.</b> At the end of the Session the Phase II MBBS student must be able to Enumerate the Complications and evaluation of Obstructive airway disease (OAD) and bronchiectasis</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, Medicine	Microbiology
PA26.4	Define and describe the etiology, types, pathogenesis, stages, morphology microscopic appearance and complications of tuberculosis	<p><b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Describe the etiology of Tuberculosis.</p> <p><b>Objective 2.</b> At the end of the Session the Phase II MBBS student must be able to Classify the types of Tuberculosis.</p> <p><b>Objective 3.</b> At the end of the Session the Phase II MBBS student must be able to Describe the Pathogenesis of Tuberculosis.</p> <p><b>Objective 4.</b> At the end of the Session the Phase II MBBS student must be able to Describe the Stages and Morphology of Tuberculosis.</p> <p><b>Objective 5.</b> At the end of the Session the Phase II MBBS student must be able to Enumerate the Complications of Tuberculosis.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA26.5	Define and describe the etiology, types, exposure, environmental influence, pathogenesis, stages, morphology, microscopic appearance and complications of Occupational lung disease	<p><b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Define the the etiology of Occupational lung disease.</p> <p><b>Objective 2.</b> At the end of the Session the Phase II MBBS student must be able to Classify the types of Occupational lung disease.</p> <p><b>Objective 3.</b> At the end of the Session the Phase II MBBS student must be able to Describe the Pathogenesis of Occupational lung disease.</p> <p><b>Objective 4.</b> At the end of the Session the Phase II MBBS student must be able to Describe the Stages and Morphology of Occupational lung disease</p> <p><b>Objective 5.</b> At the end of the Session the Phase II MBBS student must be able to Enumerate the Complications of Tuberculosis.</p>	K	KH	Y	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA26.6	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, stages, morphology, microscopic appearance, metastases and complications of tumors of the lung and pleura	<p><b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Describe the etiology of tumors of the lung and pleura.</p> <p><b>Objective 2.</b> At the end of the Session the Phase II MBBS student must be able to Classify the types of tumors of the lung and pleura.</p> <p><b>Objective 3.</b> At the end of the Session the Phase II MBBS student must be able to Describe the Pathogenesis of tumors of the lung and pleura.</p> <p><b>Objective 4.</b> At the end of the Session the Phase II MBBS student must be able to Describe the Stages and Morphology of tumors of the lung and pleura.</p> <p><b>Objective 5.</b> At the end of the Session the Phase II MBBS student must be able to Enumerate the Complications of tumors of the lung and pleura.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA26.7	Define and describe the etiology, types, exposure, genetics environmental influence, pathogenesis, morphology, microscopic appearance and complications of mesothelioma	<p><b>Objective 1.</b> At the end of the Session the Phase II MBBS student must be able to Describe the etiology of mesothelioma.</p> <p><b>Objective 2.</b> At the end of the Session the Phase II MBBS student must be able to Classify the types of mesothelioma.</p> <p><b>Objective 3.</b> At the end of the Session the Phase II MBBS student must be able to Describe the Pathogenesis of mesothelioma.</p> <p><b>Objective 4.</b> At the end of the Session the Phase II MBBS student must be able to describe the stages and Morphology of mesothelioma.</p> <p><b>Objective 5.</b> At the end of the Session the Phase II MBBS student must be able to enumerate the complications of mesothelioma</p>	K	KH	N	Lecture, Small group discussion	Written / Viva voce		General Medicine, Community Medicine	
<b>Topic: Cardiovascular system</b>			<b>Number of competencies: (10)</b>			<b>Number of procedures that require certification : (NIL)</b>				
PA27.1	Distinguish arteriosclerosis from atherosclerosis. Describe the pathogenesis and pathology of various causes and types of arteriosclerosis	<p><b>Objective 1:</b> At the end of the Session the Phase II MBBS student must be able to distinguish arteriosclerosis from atherosclerosis.</p> <p><b>Objective 2 :</b> At the end of the Session the Phase II MBBS student must be able to describe the Risk factors associated with Atherosclerosis</p> <p><b>Objective 3 :</b> At the end of the Session the Phase II MBBS student must be able to describe the Pathogenesis of Atherosclerosis.</p> <p><b>Objective 4 :</b> At the end of the Session the Phase II MBBS student must be able to describe the Pathology of Atherosclerosis</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.2	Describe the etiology, dynamics, pathology types and complications of aneurysms including aortic aneurysms	<p><b>Objective I:</b> At the end of the Session the Phase II MBBS student must be able to describe the various vascular malformation including aortic aneurysm</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA27.3	Describe the etiology, types, stages pathophysiology, pathology and complications of heart failure	<b>Objective I:</b> At the end of the Session the Phase II MBBS student must be able to Describe the describe the pathophysiology of Heart Failure. <b>Objective 2 :</b> At the end of the Session the Phase II MBBS student must be able to distinguish between the pathophysiology of Left and Right Heart Failure.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.4	Describe the etiology, pathophysiology, pathology, gross and microscopic features, criteria and complications of rheumatic fever	<b>Objective 1:</b> At the end of the Session the Phase II MBBS student must be able to Enmerate the various causes of Inflammatory Heart Diseas. <b>Objective 2:</b> At the end of the etiology, pathophysiology, pathology, gross and microscopic features, criteria and complications of rheumatic fever.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.5	Describe the epidemiology, risk factors, etiology, pathophysiology, pathology, presentations, gross and microscopic features, diagnostic tests and complications of ischemic heart disease	<b>Objective I:</b> At the end of the Session the Phase II MBBS student must be able to Deccribe the Epidemiology and Risk factors associated with Ischemic Heart Disease. <b>Objective 2 :</b> At the end of the Session the Phase II MBBS student must be able to Describe the Pathogenesis of Ischemic Heart Disease. <b>Objective 3 :</b> At the end of the Session the Phase II MBBS student must be able to Describe the Pathology of Ischemic Heart Disease. <b>Objective 4 :</b> At the end of the Session the Phase II MBBS student must be able to Describe the Complications and Outcome of Ischemic Heart Disease.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA27.6	Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of infective endocarditis	<b>Objective I :</b> At the end of the Session the Phase II MBBS student must be able to Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of infective endocarditis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA27.7	Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of pericarditis and pericardial effusion	<b>Objective I :</b> At the end of the Session the Phase II MBBS student must be able to Describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of pericarditis and pericardial effusionand complications of infective endocarditis.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA27.8	Interpret abnormalities in cardiac function testing in acute coronary syndromes	<b>Objective 1 :</b> At the end of the Session the Phase II MBBS student must be able to Interpret abnormalities in cardiac function testing in acute coronary syndromes	S	SH	Y	DOAP session	Skill Assessment		Physiology, General Medicine	
PA27.9	Classify and describe the etiology, types, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies	<b>Objective 1 :</b> At the end of the Session the Phase II MBBS student must be able to classify the types, of cardiomyopathies. <b>Objective 2 :</b> At the end of the Session the Phase II MBBS student must be able to describe the etiology, pathophysiology, pathology, gross and microscopic features, diagnosis and complications of cardiomyopathies	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Physiology	
PA27.10	Describe the etiology, pathophysiology, pathology features and complications of syphilis on the cardiovascular system	<b>Objective I :</b> At the end of the Session the Phase II MBBS student must be able to describe the etiology, pathophysiology, pathology features and complications of syphilis on the cardiovascular system.	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology

**Topic: Urinary Tract**

**Number of competencies: (05)**

**Number of procedures that require certification : (NIL)**

PA28.1	Describe the normal histology of the kidney	<b>Objective I :</b> At the end of the Session the Phase II MBBS student must be able to describe the normal histology of the kidney	K	K	Y	Lecture, Small group discussion	Written/ Viva voce			
PA28.2	Define, classify and distinguish the clinical syndromes and describe the etiology, pathogenesis, pathology, morphology, clinical and laboratory and urinary findings, complications of renal failure	<b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define different urinary clinical syndromes. <b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to distinguish between urinary clinical syndromes. <b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe the basis of impaired urinary function. <b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe the etiology of impaired urinary function. <b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to discuss pathogenesis of impaired urinary function. <b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to discuss abnormal urinary findings of renal failure. <b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to discuss complications of renal failure.	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce			



Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA28.3	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings, progression and complications of acute renal failure	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define acute renal failure.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe etiology of acute renal failure.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss precipitating factors of acute renal failure.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss pathogenesis of acute renal failure.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to discuss pathological features of acute renal failure.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to discuss laboratory finding in acute renal failure.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to discuss progressive course in acute renal failure.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to discuss complications of acute renal failure.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.4	Define and describe the etiology, precipitating factors, pathogenesis, pathology, laboratory urinary findings progression and complications of chronic renal failure	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define chronic renal failure.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe etiology of chronic renal failure.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss precipitating factors of chronic renal failure.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss pathogenesis of chronic renal failure.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to discuss pathological features of chronic renal failure.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to discuss laboratory finding in chronic renal failure.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to discuss progressive course in chronic renal failure.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to discuss complications of chronic renal failure.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA28.5	Define and classify glomerular diseases. Enumerate and describe the etiology, pathogenesis, mechanisms of glomerular injury, pathology, distinguishing features and clinical manifestations of glomerulonephritis	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define glomerular diseases.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to classify glomerular diseases.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe the etiology of glomerular diseases.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss pathogenesis of glomerular injury.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to discuss mechanisms of glomerular injury.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to discuss pathological features of glomerular injury.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to discuss manifestations of glomerulonephritis.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA28.6	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of IgA nephropathy	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define IgA nephropathy.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe etiology of IgA nephropathy.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of IgA nephropathy.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss pathology of IgA nephropathy.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to discuss lab findings in IgA nephropathy.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to discuss urinary findings in IgA nephropathy.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to discuss progression course in IgA nephropathy.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to discuss complications of IgA nephropathy.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.7	Enumerate and describe the findings in glomerular manifestations of systemic disease	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to enumerate glomerular finding of systemic diseases.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe pathological findings of systemic diseases.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.8	Enumerate and classify diseases affecting the tubular interstitium	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to enumerate diseases affecting the tubular interstitium.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to classify diseases affecting tubular interstitium.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA28.9	Define and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, progression and complications of acute tubular necrosis	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define acute tubular necrosis.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to discuss etiology of acute tubular necrosis.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss pathogenesis of acute tubular necrosis</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss complications of acute tubular necrosis.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.10	Describe the etiology, pathogenesis, pathology, laboratory findings, distinguishing features progression and complications of acute and chronic pyelonephritis and reflux nephropathy	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe acute pyelonephritis.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to discuss etiology of acute pyelonephritis.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss pathogenesis of acute pyelonephritis.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss pathology of acute pyelonephritis.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to discuss lab findings in acute pyelonephritis.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to discuss complications of acute pyelonephritis.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to describe chronic pyelonephritis.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to discuss etiology of chronic pyelonephritis.</p> <p><b>Objective 9.</b> At the end of the session the phase II MBBS students must be able to discuss pathogenesis of chronic pyelonephritis.</p> <p><b>Objective 10.</b> At the end of the session the phase II MBBS students must be able to discuss pathology of chronic pyelonephritis.</p> <p><b>Objective 11.</b> At the end of the session the phase II MBBS students must be able to discuss lab findings in chronic pyelonephritis.</p> <p><b>Objective 12.</b> At the end of the session the phase II MBBS students must be able to discuss complications of chronic pyelonephritis.</p> <p><b>Objective 13.</b> At the end of the session the phase II MBBS students must be able to describe reflux nephropathy.</p> <p><b>Objective 14.</b> At the end of the session the phase II MBBS students must be able to discuss etiology of reflux nephropathy..</p> <p><b>Objective 15.</b> At the end of the session the phase II MBBS students must be able to discuss pathogenesis of reflux nephropathy.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
		<p><b>Objective 16.</b> At the end of the session the phase II MBBS students must be able to discuss pathology of reflux nephropathy.</p> <p><b>Objective 17.</b> At the end of the session the phase II MBBS students must be able to discuss lab findings in reflux nephropathy..</p> <p><b>Objective 18.</b> At the end of the session the phase II MBBS students must be able to discuss complications of reflux nephropathy.</p>								
PA28.11	Define classify and describe the etiology, pathogenesis pathology, laboratory, urinary findings, distinguishing features progression and complications of vascular disease of the kidney	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define renal vascular dysfunctions.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe etiology of renal vascular dysfunctions.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of renal vascular dysfunctions.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss pathology of renal vascular dysfunctions.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to discuss lab findings in renal vascular dysfunctions.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to discuss urinary findings in renal vascular dysfunctions.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to discuss diseases progression of renal vascular dysfunctions.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to discuss complications of renal vascular dysfunctions.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
PA28.12	Define classify and describe the genetics, inheritance, etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features, progression and complications of cystic disease of the kidney	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define cystic diseases.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe etiology of cystic diseases.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of cystic diseases.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss pathology of cystic diseases.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to discuss lab findings in cystic diseases.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to discuss urinary findings in cystic diseases.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to discuss diseases progression of cystic diseases.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to discuss complications of cystic diseases.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine, Pediatrics	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA28. 13	Define classify and describe the etiology, pathogenesis, pathology, laboratory, urinary findings, distinguishing features progression and complications of renal stone disease and obstructive uropathy	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define renal stone diseases.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe etiology of renal stone diseases.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of renal stone diseases.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss pathology of renal stone diseases.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to discuss lab findings in renal stone diseases.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to discuss urinary findings in renal stone diseases.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to discuss progression of renal stone diseases.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to discuss complications of renal stone diseases.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA28. 14	Classify and describe the etiology, genetics, pathogenesis, pathology, presenting features, progression and spread of renal tumors	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to classify renal tumors.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe etiology of renal tumors.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of renal tumors.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss pathology of renal tumors.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe the features of renal tumors.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to discuss spread of renal tumors.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA28. 15	Describe the etiology, genetics, pathogenesis, pathology, presenting features and progression of thrombotic angiopathies	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe the thrombotic angiopathies.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe etiology of thrombotic angiopathies.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of thrombotic angiopathies.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss pathology of thrombotic angiopathies.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe the features of thrombotic angiopathies.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to discuss progression of thrombotic angiopathies.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	



Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA29.2	Describe the pathogenesis, pathology, presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the penis	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of carcinoma penis.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe pathology of carcinoma penis.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe presenting features of carcinoma penis.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe distinguishing features of carcinoma penis.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe diagnostic tests for carcinoma penis.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe progression of carcinoma penis.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to describe spread of carcinoma penis.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.3	Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, urologic findings & diagnostic tests of benign prostatic hyperplasia	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of benign prostatic hyperplasia.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe pathology of benign prostatic hyperplasia.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe hormonal dependency of benign prostatic hyperplasia.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe presenting features of benign prostatic hyperplasia.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe distinguishing features of benign prostatic hyperplasia</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe urologic findings of benign prostatic hyperplasia</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to describe diagnostic tests for benign prostatic hyperplasia.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	
PA29.4	Describe the pathogenesis, pathology, hormonal dependency presenting and distinguishing features, diagnostic tests, progression and spread of carcinoma of the prostate	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of carcinoma prostate.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe pathology of carcinoma prostate.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe hormonal dependency of carcinoma prostate.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe presenting features of carcinoma prostate.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe distinguishing features of carcinoma prostate</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe diagnostic tests for carcinoma prostate.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to describe progression of carcinoma prostate.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to describe spread of carcinoma prostate.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	





Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA30.3	Describe the pathogenesis, etiology, pathology, diagnosis and progression and spread of carcinoma of the leiomyomas and leiomyosarcomas	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of leiomyoma.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe etiology of leiomyoma.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe types of leiomyoma.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe pathology of leiomyoma.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe diagnosis of leiomyoma.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe leiomyosarcoma.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to describe progression of leiomyosarcoma.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to describe spread of leiomyosarcoma.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.4	Classify and describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of ovarian tumors	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to classify ovarian tumors.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of ovarian tumors.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe etiology of ovarian tumors.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe pathology of ovarian tumors.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe morphology of ovarian tumors.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe clinical course of ovarian tumors.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to describe spread of ovarian tumors.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to describe complications of ovarian tumors.</p> <p><b>Objective 9.</b> At the end of the session the phase II MBBS students must be able to describe different tumor markers of ovarian tumors.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA30.5	Describe the etiology, pathogenesis, pathology, morphology, clinical course, spread and complications of gestational trophoblastic neoplasms	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to classify gestational trophoblastic neoplasms.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of gestational trophoblastic neoplasms.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe etiology of gestational trophoblastic neoplasms.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe pathology of gestational trophoblastic neoplasms.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe morphology of gestational trophoblastic neoplasms.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe clinical course of gestational trophoblastic neoplasms.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to describe spread of gestational trophoblastic neoplasms.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to describe complications of gestational trophoblastic neoplasms.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.6	Describe the etiology and morphologic features of cervicitis	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe cervicitis.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe types of cervicitis.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe etiology of cervicitis.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe morphological features of cervicitis.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.7	Describe the etiology, hormonal dependence, features and morphology of endometriosis	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe endometriosis.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe etiology of endometriosis.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe hormonal dependency of endometriosis.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe features of endometriosis.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe morphological features of endometriosis.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
PA30.8	Describe the etiology and morphologic features of adenomyosis	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe adenomyosis.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to describe etiology of adenomyosis.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe morphological features of adenomyosis.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA30.9	Describe the etiology, hormonal dependence and morphology of endometrial hyperplasia	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe endometrial hyperplasia.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to classify endometrial hyperplasia.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe hormonal dependency of endometrial hyperplasia.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe morphological features of endometrial hyperplasia.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Obstetrics & Gynaecology	
<b>Topic: Breast</b> <span style="margin-left: 150px;"><b>Number of competencies: (04)</b></span> <span style="margin-left: 150px;"><b>Number of procedures that require certification: (NIL)</b></span>										
PA31.1	Classify and describe the types, etiology, pathogenesis, pathology and hormonal dependency of benign breast disease	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to classify the benign breast disease.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to describe the different types of benign breast disease.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to discuss the etiology of benign breast disease.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to discuss the pathogenesis of benign breast disease.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to describe the pathology of benign breast disease.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to describe about the hormonal dependency of benign breast disease.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to describe about the fibroadenoma in detail.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, General Surgery	
PA31.2	Classify and describe the epidemiology, pathogenesis, classification, morphology, prognostic factors, hormonal dependency, staging and spread of carcinoma of the breast	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to classify the carcinoma of breast.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to describe the epidemiology of carcinoma breast.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to discuss about the pathogenesis of carcinoma breast.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to describe the morphology of lesion of carcinoma breast.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to discuss the prognostic factors of carcinoma breast.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to describe the hormonal dependency of carcinoma breast.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to describe the staging for carcinoma breast.</p> <p><b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to discuss about the spread of carcinoma of breast</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Surgery	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA31.3	Describe and identify the morphologic and microscopic features of carcinoma of the breast	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to identify the morphological features of carcinoma breast.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to describe the morphological features of carcinoma of breast.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to identify the microscopic features of carcinoma of breast.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to describe the microscopic features of carcinoma of breast.</p>	S	SH	N	DOAP session	Skill Assessment		General Surgery	
PA31.4	Enumerate and describe the etiology, hormonal dependency and pathogenesis of gynecomastia	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to enumerate the etiology of gynecomastia.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to describe the pathogenesis of gynecomastia.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to discuss about the gynecomastia.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to describe about the hormonal dependency of gynecomastia.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Pediatrics, General Medicine	
<b>Topic:</b>										

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Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA32.1	Enumerate, classify and describe the etiology, pathogenesis, pathology and iodine dependency of thyroid swellings	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to describe normal anatomy of thyroid gland.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to describe development of thyroid gland.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to describe histology of thyroid gland.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to enumerate functions of thyroid gland.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to describe synthesis and release of thyroid hormones.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to define goitre.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to discuss types of goitre.</p> <p><b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to discuss pathogenesis of goitre.</p> <p><b>Objective 9.</b> At the end of session of the phase II MBBS students must be able to list causes of goitre.</p> <p><b>Objective 10.</b> At the end of session of the phase II MBBS students must be able to describe morphological features in different types of goitre.</p> <p><b>Objective 11.</b> At the end of session of the phase II MBBS students must be able to differentiate diffuse goitre and nodular goitre.</p> <p><b>Objective 12.</b> At the end of session of the phase II MBBS students must be able to define thyroiditis.</p> <p><b>Objective 13.</b> At the end of session of the phase II MBBS students must be able to classify thyroiditis.</p> <p><b>Objective 14.</b> At the end of session of the phase II MBBS students must be able to describe etiopathogenesis of different types of thyroiditis.</p> <p><b>Objective 15.</b> At the end of session of the phase II MBBS students must be able to describe morphological features of different types of thyroiditis.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
PA32.2	Describe the etiology, cause, iodine dependency, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to define thyrotoxicosis.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to describe the etiology of thyrotoxicosis.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to describe pathogenesis of thyrotoxicosis.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to enumerate clinical features of thyrotoxicosis.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to list laboratory findings in thyrotoxicosis.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to list imaging features in thyrotoxicosis.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to describe course of thyrotoxicosis.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA32.3	Describe the etiology, pathogenesis, manifestations, laboratory and imaging features and course of thyrotoxicosis/hypothyroidism	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to define hypothyroidism.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to list causes of hypothyroidism.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to describe pathogenesis of hypothyroidism.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to define cretinism.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to enumerate causes of myxoedema.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to enumerate clinical features of myxoedema.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to list laboratory findings in hypothyroidism.</p> <p><b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to list imaging features in hypothyroidism.</p>	K	KH	Y	Lecture, Small group	Written/ Viva voce		Physiology, General Medicine	

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Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA32.4	Classify and describe the epidemiology, etiology, pathogenesis, pathology, clinical laboratory features, complications and progression of diabetes mellitus	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to define DM.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to classify DM.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to describe etiology of DM.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to enumerate risk factors for type2 DM.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to describe normal Insulin metabolism.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to describe pathogenesis of DM.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to discuss morphological features in pancreatic islets in DM.</p> <p><b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to enumerate clinical features of diabetes mellitus.</p> <p><b>Objective 9.</b> At the end of session of the phase II MBBS students must be able to differentiate type 1 and Type 2 DM.</p> <p><b>Objective 10.</b> At the end of session of the phase II MBBS students must be able to enumerate complications of DM.</p> <p><b>Objective 11.</b> At the end of session of the phase II MBBS students must be able to describe pathogenesis of complications of diabetes mellitus.</p> <p><b>Objective 12.</b> At the end of session of the phase II MBBS students must be able to describe progression of DM.</p> <p><b>Objective 13.</b> At the end of session of the phase II MBBS students must be able to describe laboratory Findings in Diabetes mellitus.</p> <p><b>Objective 14.</b> At the end of session of the phase II MBBS students must be able to discuss diagnostic criteria for DM.</p> <p><b>Objective 15.</b> At the end of session of the phase II MBBS students must be able to describe Oral Glucose tolerance test.</p> <p><b>Objective 16.</b> At the end of session of the phase II MBBS students must be able to describe describe Glycosylated haemoglobin in DM.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA32.5	Describe the etiology, genetics, pathogenesis, manifestations, laboratory and morphologic features of hyperparathyroidism	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to describe normal anatomy of parathyroid gland.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to discuss normal histology of parathyroid gland.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to define hyperparathyroidism.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to describe causes of hyperparathyroidism.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to discuss clinical features of hyperparathyroidism.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to discuss pathogenesis of hyperparathyroidism.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to describe morphological features in hyperparathyroidism.</p> <p><b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to list laboratory findings in hyperparathyroidism.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.6	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications and metastases of pancreatic cancer	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to describe anatomy of pancreas.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to describe normal histology of pancreas.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to list causes of pancreatic cancer.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to discuss pathogenesis of pancreatic cancer.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to describe manifestations of pancreatic cancer.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to list laboratory findings in pancreatic finding.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to discuss morphological features in pancreatic cancer.</p> <p><b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to list complications in pancreatic cancer.</p> <p><b>Objective 9.</b> At the end of session of the phase II MBBS students must be able to discuss metastasis of pancreatic cancer.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Surgery	



Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA32.7	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of adrenal insufficiency	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to define hypoadrenalism</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to discuss types of adrenocortical hypofunction</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to define adrenal crisis</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to list causes of adrenal crisis.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to pathogenesis of adrenal crisis.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to discuss clinical features of adrenal crisis.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to define chronic adrenal insufficiency.</p> <p><b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to enumerate causes of chronic adrenal insufficiency.</p> <p><b>Objective 9.</b> At the end of session of the phase II MBBS students must be able to discuss clinical features of chronic adrenal insufficiency.</p> <p><b>Objective 10.</b> At the end of session of the phase II MBBS students must be able to define secondary adrenocortical insufficiency</p> <p><b>Objective 11.</b> At the end of session of the phase II MBBS students must be able to list causes of adrenocortical insufficiency</p> <p><b>Objective 12.</b> At the end of session of the phase II MBBS students must be able to describe clinical features of secondary adrenocortical insufficiency.</p> <p><b>Objective 13.</b> At the end of session of the phase II MBBS students must be able to discuss hypoaldosteronism.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	
PA32.8	Describe the etiology, pathogenesis, manifestations, laboratory, morphologic features, complications of Cushing's syndrome	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to define cushing's syndrome.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to discuss etiopathogenesis of cushing's syndrome.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to discuss clinical features of cushing's syndrome.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to discuss laboratory findings of cushing's syndrome</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to discuss complications of cushing's syndrome.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Physiology, General Medicine	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA32.9	Describe the etiology, pathogenesis, manifestations, laboratory and morphologic features of adrenal neoplasms	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to classify adrenal tumors.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to discuss adrenocortical tumors.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to enumerate adrenomedullary tumor.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to discuss clinical features of pheochromocytoma.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to discuss morphopathological features of pheochromocytoma.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to discuss neuroblastoma.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Physiology, General Medicine, General Surgery	
<b>Topic: Bone and soft tissue</b>										
			<b>Number of competencies: (05)</b>			<b>Number of procedures that require certification : (NIL)</b>				
PA33.1	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of osteomyelitis	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to define osteomyelitis.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to classify the osteomyelitis.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to discuss about the etiology of various types of osteomyelitis.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to describe the routes of infection in osteomyelitis.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to describe the pathogenesis of osteomyelitis.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to describe the manifestations of osteomyelitis in the form of clinical features.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to describe the radiological findings in osteomyelitis.</p> <p><b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to discuss the morphological features of different osteomyelitis.</p> <p><b>Objective 9.</b> At the end of session of the phase II MBBS students must be able to describe the complications of osteomyelitis.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Human Anatomy, Orthopaedics	Microbiology

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA33.2	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of bone tumors	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to classify the bone tumors.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to enumerate the common bone tumor according to different anatomical site.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to enumerate the common bone tumor in various age group.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to describe the etiology of bone tumors.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to describe the pathogenesis of bone tumors especially of osteogenic sarcoma.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to discuss the clinical manifestations of various bone tumors with special attention to osteogenic sarcoma.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to describe the radiological findings in various bone tumors including osteogenic sarcoma.</p> <p><b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to describe the morphological features of different bone tumors.</p> <p><b>Objective 9.</b> At the end of session of the phase II MBBS students must be able to discuss the complications of bone tumors.</p> <p><b>Objective 10.</b> At the end of session of the phase II MBBS students must be able to describe the sites of metastasis of bone tumors.</p> <p><b>Objective 11.</b> At the end of session of the phase II MBBS students must be able to describe the osteogenic sarcoma in detail.</p> <p><b>Objective 12.</b> At the end of session of the phase II MBBS students must be able to classify the osteogenic sarcoma.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Orthopaedics	
PA33.3	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications and metastases of soft tissue tumors	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to classify the soft tissue tumors.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to describe the etiology of soft tissue tumors.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to describe the pathogenesis of soft tissue tumors.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to discuss the clinical manifestations of soft tissue tumors.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to describe the radiological findings in soft tissue tumors.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to describe the morphological features of soft tissue tumors.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to discuss the complications of soft tissue tumors.</p> <p><b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to describe the sites of metastasis of soft tissue tumors.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Orthopaedics	

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA33.4	Classify and describe the etiology, pathogenesis, manifestations, radiologic and morphologic features and complications of Paget's disease of the bone	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to know about Paget's disease of the bone.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to describe the etiology of Paget's disease of the bone.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to describe the pathogenesis of Paget's disease of the bone.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to discuss the clinical manifestations of Paget's disease of the bone.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to describe the radiological findings in Paget's disease of the bone.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to describe the morphological features of Paget's disease of the bone.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to discuss the complications of Paget's disease of the bone.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Orthopaedics	
PA33.5	Classify and describe the etiology, immunology, pathogenesis, manifestations, radiologic and laboratory features, diagnostic criteria and complications of rheumatoid arthritis	<p><b>Objective 1.</b> At the end of session of the phase II MBBS students must be able to classify the different types of arthritis.</p> <p><b>Objective 2.</b> At the end of session of the phase II MBBS students must be able to describe the etiology of rheumatoid arthritis.</p> <p><b>Objective 3.</b> At the end of session of the phase II MBBS students must be able to describe the immunology of rheumatoid arthritis.</p> <p><b>Objective 4.</b> At the end of session of the phase II MBBS students must be able to describe the pathogenesis of rheumatoid arthritis.</p> <p><b>Objective 5.</b> At the end of session of the phase II MBBS students must be able to discuss the clinical manifestations of rheumatoid arthritis.</p> <p><b>Objective 6.</b> At the end of session of the phase II MBBS students must be able to describe the radiological findings of rheumatoid arthritis.</p> <p><b>Objective 7.</b> At the end of session of the phase II MBBS students must be able to describe the clinical manifestations of rheumatoid arthritis.</p> <p><b>Objective 8.</b> At the end of session of the phase II MBBS students must be able to describe the laboratory findings of rheumatoid arthritis.</p> <p><b>Objective 9.</b> At the end of session of the phase II MBBS students must be able to discuss the diagnostic criteria of rheumatoid arthritis.</p> <p><b>Objective 10.</b> At the end of session of the phase II MBBS students must be able to discuss the complications of rheumatoid arthritis.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		General Medicine	
<b>Topic: Skin</b>		<b>Number of competencies: (04)</b>			<b>Number of procedures that require certification:(NIL)</b>					

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA34.1	Describe the risk factors pathogenesis, pathology and natural history of squamous cell carcinoma of the skin	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe risk factors for squamous cell carcinoma.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to discuss pathogenesis of squamous cell carcinoma.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss pathology of features of squamous cell carcinoma.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss natural history of squamous cell carcinoma.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.2	Describe the risk factors pathogenesis, pathology and natural history of basal cell carcinoma of the skin	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe risk factors for basal cell carcinoma.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to discuss pathogenesis of basal cell carcinoma.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss pathology of features of basal cell carcinoma.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss natural history of basal cell carcinoma.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.3	Describe the distinguishing features between a nevus and melanoma. Describe the etiology, pathogenesis, risk factors morphology clinical features and metastases of melanoma	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe neves.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to distinguishing features of neves and melanoma.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe melanoma.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to discuss etiology of melanoma.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to discuss risk factorus of melanoma.</p> <p><b>Objective 6.</b> At the end of the session the phase II MBBS students must be able to describe pathogenesis of risk factors of melanoma.</p> <p><b>Objective 7.</b> At the end of the session the phase II MBBS students must be able to discuss clinical features of malanoma.</p> <p><b>Objective 8.</b> At the end of the session the phase II MBBS students must be able to discuss morphology features of malanoma.</p> <p><b>Objective 9.</b> At the end of the session the phase II MBBS students must be able to discuss metastases of malanoma.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Dermatology, Venereology & Leprosy	
PA34.4	Identify, distinguish and describe common tumors of the skin	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to identify common tumours of skin.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to discribe common tumors of skin.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to distinguishing discribe common tumours of skin.</p>	S	SH	N	DOAP session	Skill Assessment		Dermatology, Venereology & Leprosy	

Topic: Central Nervous System

Number of competencies:(03)

Number of procedures that require certification: (01)

Number	COMPETENCY The student should be able to	Specific Learning Objective (K/S/A/C)	Domain K/S/A/C	Level K/KH/S H/P	Core Y/N	Suggested Teaching Learning methods	Suggested Assessment methods	Number required to certify P	Vertical integration	Horizontal Integration
PA35.1	Describe the etiology, types and pathogenesis, differentiating factors, CSF findings in meningitis	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to define the meningitis.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to discuss the type &amp; etiology of meningitis.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to discuss the pathogenesis of meningitis.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to differentiate viral, bacterial and tubercular meningitis.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to describe CSF findings. in meningitis.</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		General Medicine	Microbiology
PA35.2	Classify and describe the etiology, genetics, pathogenesis, pathology, presentation sequelae and complications of CNS tumors	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to classify CNS tumors.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to discuss etiology &amp; pathogenesis of CNS tumors.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe manifestation of CNS tumors.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe morphological features of CNS tumors.</p> <p><b>Objective 5.</b> At the end of the session the phase II MBBS students must be able to enumerate complication of CNS tumors</p>	K	KH	Y	Lecture, Small group discussion	Written/ Viva voce		Pediatrics	
PA35.3	Identify the etiology of meningitis based on given CSF parameters	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to Interpret of given CSF finding in meningitis.</p>	S	P	Y	DOAP session	Skill Assessment	1	General Medicine	Microbiology
<b>Topic: Eye</b>		<b>Number of competencies: (01)</b>	<b>Number of procedures that require certification:(NIL)</b>							
PA36.1	Describe the etiology, genetics, pathogenesis, pathology, presentation, sequelae and complications of retinoblastoma	<p><b>Objective 1.</b> At the end of the session the phase II MBBS students must be able to describe molecular details of Retinoblastoma development.</p> <p><b>Objective 2.</b> At the end of the session the phase II MBBS students must be able to compare and contrast mechanisms of hereditary and nonhereditary Retinoblastoma.</p> <p><b>Objective 3.</b> At the end of the session the phase II MBBS students must be able to describe morphology of Retinoblastoma.</p> <p><b>Objective 4.</b> At the end of the session the phase II MBBS students must be able to describe clinical presentation and complications of Retinoblastoma.</p>	K	KH	N	Lecture, Small group discussion	Written/ Viva voce		Ophthalmology	