JINNAH SINDH MEDICAL UNIVERSITY

General Pathology & Microbiology Curriculum

Ref# CURRICULUM MEETING/JSMU/2016-17/ 05

Dated: 07-06-17

TABLE OF SPECIFICATIONS

BDS 2ND YEAR

General Pathology & Microbiology

GENERAL PATHOLOGY

1 Cell Injury:

S.No	Lecture Topic	Topic Objectives	Mode of teaching	Assessment tools
	Introduction to cell injury		L	
1.	Introduction to cell injury	Define cell injury, Describe causes, mechanism and pathogenesis of cell injury.	L	Assignment
2.	Cellular adaptations	Describe cellular Adaptations Define and give examples of : Hyperplasia, Metaplasia, Dysplasia, Atrophy and Hypertrophy.	L P	Class participation
3.	Process of cell injury	Sequence of the ultrastructural and biochemical changes which occur in the cell in response to cell injury Irreversible and reversible injury.	L P	Class participation Group assignment
4.	Necrosis Apoptosis	Define Necrosis and Describe its types and give examples. Define Apoptosis Briefly discuss the pathogenesis and its significance. Differentiate b/w apoptosis & necrosis	L P L	Class participation Assignment
5.	Intracellular accumulation	What are various Intracellular accumulation Discuss and differentiate b/w Dystrophic and metastatic calcification along with clinical significance.	L	Class participation Class test

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2. INFLAMMATION AND WOUND HEALING

S.No	Lecture Topic	Topic Objectives	Mode of teaching	Assessment tools
1.	Inflammation. Introduction	Describe the role of inflammation in the defense mechanisms of the body. Differentiate between acute and chronic inflammation	L	Class participation
2.	Acute inflammation	Describe the vascular changes of acute inflammation and relate these to the morphological and tissue effects. b) Describe the cellular events of inflammation particularly process of chemotaxis, opsonization and phagocytosis.	L T P	Class test Group assignment
3.	Chemical mediators of inflammation	List the important chemical mediators of inflammation Describe the pathway particularly the complement & coagulation pathways, Archidonic Acid metabolism. g) Discuss the role of products of Archidonic acid metabolism in inflammation. h) Describe the mechanism for development of fever, with reference to exogenous and endogenous pyrogens.	L T	Class test Group assignment
4.		Differentiate between exudate and transudate. Describe the systemic effects of acute and chronic inflammation and their possible outcomes.		
5.	Chronic Inflammation	Describe chronic inflammation including granuloma. j) Define granuloma, its type and causes.	L P T	Class test Group assignment

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6.	Repair	Repair and Regeneration.	T	participation Class test Group assignment Final Examination
7.		Describe wound healing by first and second intention Describe the formation of granulation tissue.	L	
8.	Complications of wound healing.	Describe the complications of wound healing.	L	

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3 DISORDERS OF FLUID & HEMODYNAMICS

S. #	**Lecture Topic**	**Lecture Objectives**	***Mode of teaching*** Lecture (L) CBL(CBL) Practical (P)	
	Introduction to hemodynamics			
1.	Edema	Definition Pathophysiological features of edema Define edema, ascites, hydrothorax and anasarca. Describe the pathophysiology of edema with special emphasis on CHF	L T	
2.	Hemorrhage Hyperemia & congestion			
3.	Thromboembolism Embolism Infarction	Explain the pathogenesis of Thromboembolism Describe the types & outcomes of thromboembolism	L T P	Class participation Class test Group assignment
4.		Describe Thrombus, its types with examples DIC		
5.		Describe, define, its types and examples.		
6.	Shock	Describe the pathogenesis of four major types of shock (Hypovolemic, cardiogenic,	L T	Class participation Group

		vasovagal and septic) and list their causes. Describe the compensatory mechanisms involved in shock.		assignment

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4. NEOPLASIA

S. #	Lecture Topic	Lecture Objectives	*Mode of teaching* Lecture (L) CBL(CBL) Practical (P)	
1.	Neoplasia Introduction	Define neoplasia, its terminologies related to it. Classification systems of tumors. Characteristics of benign and malignant tumors. Local and systemic effects of tumors. Mechanism of local and distant spread.	L P	
2.	Molecular basis & carcinogenic agents	Molecular basis of cancer Carcinogenic agents Chemical, Physical agents and M/O related to human cancer.	L T	Class participation Class test Group assignment Final Examination
3.	Tumor diagnosis	Grading and staging system of tumors.	L T	

ENVIRONMENTAL PATHOLOGY:

- Nutritional deficiency
- Alcohol abuse
- Burns & Radiation
- Smoking

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5 GENETICS

S. #	**Lecture Topic**	**Lecture Objectives**	***Mode of teaching*** Lecture (L) CBL(CBL) Practical (P)	
	Introduction to Genetics			
1.	Mutations	Define mutations and various types		
2.	Transmission pattern of single gene disorders	Enumerate various transmission patterns of single gene disorders including - Autosomal dominant disorders - Autosomal recessive disorders - X inked disorders Describe important examples of each		
3.		Enumerate: - Disorders associated with defects in structural proteins - Disorders associated with Receptor proteins - Disorders associated with Enzymes		

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SYSTEMIC PATHOLOGY

S. #	**Lecture Topic**	**Lecture Objectives**	***Mode of teaching*** Lecture (L) CBL(CBL) Practical (P)	
4.	Blood Disorders	Anemia (classification, Investigation & Bleeding Disorders)	L & P	
5.	Blood Vessels Disorders	Atherosclerosis Hypotension	L	
6.	CVS	Ischemic Heart Diseases (IHD) Rheumatic Heart Diseases (RHD) Endocarditis	L	
7.	Respiratory system	COPD (Definition , causes & S/S)		
8.	GIT	IBDs (Crohn's disease and Ulcerative colitis) Peptic Ulcers (Acute & chronic gastritis)		
9.	Endocrine System	Diabetes Thyroid		

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6 IMMUNOLOGY

S. #	**Lecture Topic**	**Lecture Objectives**	***Mode of teaching*** Lecture (L) CBL(CBL) Practical (P) Tutorial (T)	
1.	Normal host defense,	Describe Specific and nonspecific defense (Innate and acquired immunity. Active & passive Immunity)		
2.	Antigen, antibodies and complement	Define Antigen, antibodies and complement Describe the importance/ clinical significance of these terms		
3.		Differentiate between Cell medicated & antibody mediated immunity		
4.	Practical applications of immunology	Describe Practical applications of immunology, (Immunization)T cells and Cellular Immunity		
5.	MHCs	Explain MHC Class 1 and MHC Class 2 with reference to transplant		
6.	Hypersensitivity reactions	Define Hypersensitivity reactions. Describe its Type and examples		
7.	immunodeficiency disorders	Classify immunodeficiency disorders. Define each of these disorders		
8.	Autoimmunity disorders	Define Autoimmunity & self-tolerance		
9.	Serological testing	**1.** Basic concepts (agglutination/ Precipitation) **2.** Typhi dot **3.** ELISA **4.** ICT e.g Malaria **5.** PCR basic concept briefly		

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MICROBIOLOGY TOS

S. #	Lecture Topic	Lecture Objectives	*Mode of teaching* Lecture (L) CBL(CBL) Practical(P) e-learning (e)	
	General bacteriology			
1	Introduction to microbiology	Different groups of microorganism with examples Eukaryotes & prokaryotes with examples	L T	
2	Morphology of bacteria	Staining Shapes Procedure or absence of accessory structures	P	
3	Anatomy of bacterial cell wall	Essential & non-essential structures of bacterial cell wall with their function Difference between gram positive & negative cell wall	L	
4	Physiology of bacteria	Oxygen requirements Different examples of aerobes, anaerobes, microaerophilic, carboxyphilic organism. Nutritional requirements Growth curve	L	
5	Classification	Classification of medically important Bacteria		
6	Genetics	Different methods of transfer of genetic material between bacterial cells		
7	Normal Flora of Human	Name & Significance		

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8	Sterilization	Various physical & chemical methods of sterilization with examples - Difference b/w disinfections and sterilization.		
9	Pathogenesis	Various methods of Transmission Source of transmission Virulence factors - Structural ex. **1.** Capsule wall **2.** Enzymes **3.** Toxins		

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9	**Laboratory diagnosis**	**Culture** ➢ specimen collection & transport (throat, swabs, blood culture) ➢ Direct microscopy **1.** Types of staining ▪ Simple ▪ Gram's ▪ Zeil nelson **2.** Wet mount ▪ Use of unstained preparation ➢ Culture & sensitivity testing ▪ Different culture media with their use ▪ Enriched & selective ▪ SDA ➢ Anaerobic culture ▪ Brief description of cooked meat media (Thioglycolate broth and gas pack jar) ➢ Biochemical testing ▪ Coagulase ▪ Catalase ▪ Oxidase ▪ TSI & Urease ➢ Sensitivity testing ➢ Media use ➢ Description & demonstration of sensitivity plates ➢ Serological tests of bacterial diseases **1.** Mountox test **2.** Widal test **3.** Typhidot (Typhoid)	P	Class participation Class test Group assignment Final Examination

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		Special Microbiology (medically important bacteria)		
10	Gram positive Cocci	Streptococcus Staphylococcus		
11	Gram Positive Rods	1. C. diphtheria 2. Bacillus 3. Listeria	L	
12	Anaerobes	1. Clostridia (c. tetani & c. defficile)	L	
13	Gram negative Cocci	Neisseria		
14	Gram negative Rods	Enteric Rods E. coli & Salmonella Pseudomonas aeruginosa Vibrio Cholera Campylobacter Enterocolitis Helicobacter Gastritis, peptic ulcer Zoonotic organism(Enumerate Zoonotic diseases) Respiratory pathogen ns Bordetella pertussis H.influenzea		
15	Mycobacteria	Mycobacterium tuberculosis Mycobacterium leprea	L	
	Parasitology			
19	**Protozoa**	E. histolytica Malaria Leishmania Giardia, toxoplasma, trichomonas	L P	
20	**Nematodes**	Hookworms Ascaris lumbricoides Entrobius vermicularis **Tissue Nematodes:** Filaria		

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21	**Cestodes**	TeniaSolium/saginata E. granulosus D. latum		
	Virology:			
22	**Virology: Introduction**	➢ Introduction ➢ Major groups of DNA & RNA viruses that infect humans ➢ Replication of viruses ➢ Discuss viral pathogen ➢ Structure ➢ Lab diagnosis		
23	**Special Virology**	➢ Hepatitis	L	
		➢ HIV	L & P	
		➢ Dengue ➢ Herpes simplex type 1 & 2 ➢ Herpes zoster virus ➢ Mumps virus ➢ Influenza virus ➢ Polio virus ➢ Rabies virus ➢ Measles	L	
	Mycology			
24	**Mycology**	*Introduction & lab diagnosis of:* ➢ Candida ➢ Dermatophytes ➢ Aspergillus	P	

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