

DEPARTMENT OF PATHOLOGY & MICROBIOLOGY
TEACHING PROGRAMME (CONTENTS & TEACHING OBJECTIVES)

II YEAR BHMS (2022 -23)

Sr. No.	Months	Name of the Topic	No. of Lectures	Teaching & learning Method
1	January	<u>Cell injury</u> Cell injury –Defination,acquired causes	11	Chalk – Talk method (black board / Lecture) Group Discussion Seminar Tutorials Debate Multimedia presentatio n
2		Hydropic change:- Defination,aetiology,pathogenesis,morphology		
3		Hyaline change:- Intracellular and extracellular hyaline examples		
4		Mucoid change:- Epithelial and connective tissue mucin examples		
5		Necrosis:- Defination,Types,Aetiology,Morphology. Apoptosis in physiologic and pathologic processes		
6		Gangrene:- Defination Dry gangrene & Wet gangrene :- Aetiology,Morphologic features		
7		Fatty change in liver:- Aetiology,Pathogenesis,Morphologic features		
8		Pathologic calcification: Dystrophic calcification: two types of causes,pathogenesis		
9		Metastatic calcification:- Aetiology,pathogenesis,sites of metastatic calcification		
10		<u>Cellular adaptation</u> Atrophy,Hyperplasia,Hypertrophy		

		Metaplasia:-Defination,Types with examples Dysplasia:-Defination,Cytologic changes with commen examples		
11	February	<u>Inflammation and Repair</u> Inflammation:- Defination,Causes,Signs,Types	15	
12		Acute inflammation:- Vascular events		
13		Cellular events		
14		Chemical mediators of inflammation:- List of chemical mediators,Source,Functions of mediators		
15		Inflammatory cells:-Functions		
16		Factors determining variation in inflammatory response		

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17	February	Morphologic types of acute inflammation with examples.Outcome of acute inflammation		Chalk – Talk method (black board / Lecture)
18		Chronic inflammation:- Defination,CausesGeneral features,Types Giant cells:- Types,Examples		Group Discussion
19		Granuloma:- Defination,Pathogenesis,description		Seminar
20		Regeneration:- Cell cycle and different types of cells		Tutorials Debate
21		Healing & Repair:- Defination Repair:- Processes involved in repair		Multimedia presentation

		Wound Healing:- Healing by first intention and Second intention.		
22	March	<u>Thrombosis</u> Thrombosis:- Defination,Pathogenesis,Morphologic features of thrombi,Origin of thrombi- Cardiac,Arterial,Venous with examples Fate of thrombus	14	
23		<u>Embolism</u> Embolism:- Defination,Types Sources of arterial thromboembolism Sources of Venous thromboembolism		
24		<u>Oedema</u> Oedema:- Defination,Types of oedema Pathogenesis of oedema with examples of oedema by each mechanism		
25		<u>Disorders of metabolism</u> Disorders of bilirubin metabolism Disorders of calcium metabolism		
26		<u>Ischaemia</u> Ischaemia:- DefinationEffects,Aetiology,Factors determining severity of ischaemic injury		
27	April	<u>Haemorrhage</u> Haemorrhage:- Defination,Aetiology,Effect of haemorrhage	13	
28		<u>Shock</u> Shock:- Defination,Classification and Aetiology,General pathogenesis of shock Stages of shock:- Pathogenesis,Effects		

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29	June	<u>Hyperaemia</u> Active hyperaemia:- Defination,Examples Passive hyperaemia:- Local venous congestion, Systemic venous congestion		Chalk – Talk method (black board / Lecture) Group Discussion Seminar Tutorials Debate Multimedia presentation
30		<u>Infarction</u> Infarction:- Defination,Aetiology,Types, Pathogenesis of process of infarction Gross and microscopic appearance of infarcts		
31		<u>Amyloidosis</u> Amyloidosis:- Defination,Classification		
32		<u>Hyperlipidaemia and lipidosis</u> Major classes of lipoproteins and their role		
33		<u>Disorders of pigmentation</u> List of endogenous pigments and exogenous pigments		
34	July	<u>Neoplasia</u> Neoplasia:- Defination,Basic components of neoplasia,Classification of tumours	12	
35		Characteristic of tumours		
36		Spread of tumours:- Local invasion		
37		Metastasis:- List routes of metastasis		
38		Grading of cancer:- Defination,Broder's grading		
39	Staging of cancer:- Defination,TNM staging			

40		Carcinogenesis:- Defination,Types,Basic concept of molecular pathogenesis of cancer		
41		<u>Immunity,Infection & Hospital infection</u> Classification of diseases of immune system		
		B) Systemic Pathology :- 50 hours		
42	August	<u>Malnutrition and Deficiency diseases</u> Protein- energy Malnutrition:- Defination,Conditions resulting from vitamin deficiencies	14	
43		<u>Diseases of cardiovascular system</u> Heart failure:- Defination,Aetiology,Types		
44		Ischaemic heart disease:- Defination,Aetiopathogenesis		
45		Angina pectoris:- Defination,Clinical pattern.		
46		Acute Myocardial Infarction:- Aetiopathogenesis		
47		Rheumatic fever:-Defination		

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48	August	Bacterial endocarditis:- Defination,Aetiology,Clinical forms		Chalk – Talk method
49		Pericarditis:-Defination,Classification		(black board / Lecture)
50		<u>Diseases of blood vessels and lymphatics</u> Atherosclerosis:- Defination,Risk factors		Group Discussion
51		Varicosities:-Defination,Aetiology		Seminar

52		Thrombophlebitis:- Defination,clinical effects		Tutorials Debate Multimedia presentation
53		Lymphangitis:- Defination,Types		
54		Lymphoedema:- Defination,Types,Aetiology		
55	September	<u>Dieases of Kidney and lower urinary tract</u> Acute renal failure:- Defination,Aetiopathogenesis	10	
56		Chronic renal failure:- Defination,Aetiopathogenesis		
57		Glomerular diseases:- Defination,Clinicopathologic classification		
58		Acute nephritic syndrome and Nephrotic syndrome:- Causes,Features		
59		Acute Pyelonephritis:- Defination,Aetiopathogenesis		
60		Renal vascular diseases:- Hypertention- Defination,Clinical and Aetiological classifications		
61		Nephrolithiasis:- Defination,types of urinary calculi		
62		<u>Diseases of male reproductive system and prostate</u> Definations of Orchitis,Epididmitis,Balanoposthitis Prostatitis:- Defination,Types Chronic prostatitis:- Types		
63		<u>Diseases of the female genitalia and breast</u> Defination of Bartholin's adenitis Vaginitis:- Causes Cervicitis:- Types		

		Defination of Salpingitis,Pelvic Inflammatory Disease		
		Acute mastitis and Breast absceess-pathogenesis		

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64	October	<u>Diseases of Eye,ENT and Neck</u> Defination of stye,Chalazion,Endophthalmitis,Conjunctivitis Ear:- Otitis media-Defination,Types Definations of Acute rhinitis,Allergic rhinitis,Sinusitis,Tonsillitis,Quinsy	11	Chalk – Talk method (black board / Lecture) Group Discussion Seminar Tutorials Debate Multimedia presentation
65		<u>Diseases of the respiratory system</u> Pneumonia:- Defination,Pathogenesis,Classification Bronchopneumonia and chronic bronchitis:-Defination,Aetiology Emphysema:- Defination,Types Bronchial Asthma:- Defination,Types Bronchiectasis:- Defination,Types Pleuritis or pleurisy:- Defination,Types		
66		<u>Diseases of oral cavity and salivary glands</u> Stomatitis:- Defination,Aetiology Glossitis:- Defination,Types Sialadenitis:- Defination,Types,aetiology		
67		<u>Diseases of G.I.system</u>		16

		<p>Acute gastritis:- Defination,Aetiopathogenesis</p> <p>Chronic gastritis:- Clinicopathologic classification</p> <p>Duodenale ulcer and gastric ulcer:- Pathogenesis</p> <p>Appendicitis:- Defination,Aetiopathogenesis</p> <p>Peritonitis:- Aetiology</p>		
68	November	<p><u>Diseases of liver,gall bladder,and biliary ducts</u></p> <p>Pathophysiologic classification of jaundice</p> <p>Alcoholic liver disease:- Outline of ethanol metabolism</p> <p>Cholangitis:- Defination,Types</p> <p>Cholecystitis:- Defination,Types,Aetiopathogenesis</p>		
69		<p><u>Diseases of pancrease(including diabetes mellitus)</u></p> <p>Defination:- Acute and chronic pancreatitis</p> <p>Diabetes mellitus:- Defination,Classification</p>		
70		<p><u>Diseases of haemopoetic system,bone marrow and blood</u></p> <p>Anaemia:- Defination,Classification</p> <p>Iron deficiency anaemia:- Aetiology,Pathogenesis</p> <p>Haemolytic anaemia:- Classification</p> <p>Acute myeloid leukaemia:- Classification</p> <p>Thrombocytopenia:- Defination,Aetiology</p>		

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71	December	<u>Diseases of glands</u> Thyrotoxicosis:- Aetiology Cretinism:- Aetiopathogenesis Goiter:- Pathogenesis,Aetiology	08	Chalk – Talk method (black board / Lecture) Group Discussion Seminar Tutorials Debate Multimedia presentation
72		<u>Diseases of the skin,soft tissue and nervous system</u> Dermatoses:- Various types with common examples Acute Pyogenic meningitis:- Defination		
73		<u>Diseases of musculoskeletal system</u> Pyogenic osteomyelitis:- Sequence of Pathologic changes Osteoporosis:- Defination,Types Osteoarthritis:- Defination,Types		
	<u>(C) Microbiology :- 45 hours</u>	10		
75	Eukaryotes and Prokaryotes			
76	<u>History and scope of medical microbiology</u> Contribution of Louis Pasteur,Robert Koch			
77	<u>Normal bacterial flora</u>			
78	<u>Pathogenecity of micro-organism</u>			
79	<u>Diagnostic microbiology</u> Gram stain ZN-stain (Acid Fast stain) Albert's stain			
80	<u>Development of immune system</u> Innate immunity :- Types			

81		<u>Acquired immunity</u> Active immunity Natural active immunity Artificial active immunity Passive immunity		
82	February	<u>Cells of immune system</u> Natural killer cells Functions of Neutrophils, Eosinophils, Basophils, Macrophages.	14	
83		<u>Cell mediated immunity</u>		
84		<u>The complement system</u>		
85		<u>Antigen</u>		
86		<u>Antibody</u> Immunoglobulin:- definition, Classes, Functions		

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87	February	<u>Antigen-antibody reactions</u> Precipitation reactions Agglutination reactions		Chalk – Talk method (black board / Lecture)
88		<u>Drug allergies</u> Type I & Type II hypersensitivity reactions		Group Discussion
89		<u>Hypersensitivity</u> Definition, Types Mechanism of Type III and Type IV hypersensitivity		Seminar Tutorials Debate
90		<u>Immunodeficiency</u>		Multimedia presentation

91		<u>Autoimmunity</u>		
92		<u>Transplantation</u>		
93		<u>Blood group antigens</u> Haemolytic disease of new-born due to Rh-D incompatibility Blood transfusion reactions		
94	March	<u>Bacterial structure,growth and metabolism</u> Bacteria :- Defination,Classification,Structure Bacterial spores:- Growth requirements of bacteria, Capsule	15	
95		<u>Identification and cultivation of bacteria</u> Culture media :- Defination,Types		
96		<u>Gram positive aerobic and facultative anaerobic cocci</u> Streptococcus pyogenes :- Morphology,Culture character,Pathogenecity,Clinical features,Laboratory diagnosis		
97		Staphylococcus aureus :- Morphology,Culture character,Pathogenecity,Clinical features,Laboratory diagnosis		
98		Pneumococcus (Streptococcus pneumonia) :- Morphology,Culture character,Pathogenecity,Clinical features,Laboratory diagnosis		
99		<u>Gram negative aerobic cocci</u> Neisseria meningitides Morphology,Culture character,Pathogenecity,Clinical features,Laboratory diagnosis		

		<p>Neisseria gonorrhoea</p> <p>Morphology, Culture character, Pathogenicity, Clinical features, Laboratory diagnosis</p>		
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100	April	<p><u>Gram positive aerobic bacilli</u></p> <p>Corynebacterium diphtheria</p> <p>Morphology, Culture character, Pathogenicity, Clinical features, Laboratory diagnosis</p> <p>Mycobacterium tuberculosis</p> <p>Morphology, Culture character, Pathogenicity, Clinical features, Laboratory diagnosis</p> <p>Mycobacterium leprae</p> <p>Morphology, Culture character, Pathogenicity, Clinical features, Laboratory diagnosis</p>	08	<p>Chalk – Talk method</p> <p>(black board / Lecture)</p> <p>Group Discussion</p> <p>Seminar</p> <p>Tutorials</p> <p>Debate</p> <p>Multimedia presentation</p>
101	June	<p><u>Gram negative aerobic bacilli</u></p> <p>Enterbacteriac group :-</p> <p>Escherichia coli</p> <p>Morphology, Culture character, Pathogenicity, Clinical features, Laboratory diagnosis</p> <p>Shigella</p> <p>, Morphology, Culture character, Pathogenicity, Clinical features, Laboratory diagnosis</p> <p>Salmonella typhi</p>	12	<p>Tutorials</p> <p>Debate</p> <p>Multimedia presentation</p>

		Morphology, Culture character, Pathogenecity, Clinical features, Laboratory diagnosis		
102		<u>Gram positive anaerobic bacilli</u> Clostridium perfringens, Clostridium tetani, Clostridium botulinum		
103		<u>Others</u> Vibrio cholera Treponema pallidum		
104		<u>Fungi</u> Mycoses		
105	July	<u>Protozoa</u> Entamoeba histolytica :- Morphology, Life cycle, Pathogenecity, Clinical features, Laboratory diagnosis Giardia intestinalis :- Morphology, Life cycle, Pathogenecity, Clinical features, Laboratory diagnosis	14	

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	July	Trichomonas vaginalis :- Morphology, Life cycle, Pathogenecity, Clinical features, Laboratory diagnosis Malaria parasite :- P. Vivax , Morphology, Life cycle, Pathogenecity, Clinical features, Laboratory diagnosis		Chalk – Talk method (black board / Lecture) Group Discussion Seminar

		<p>P.Falciparum</p> <p>Morphology,Life cycle, Pathogenecity, Clinical features,Laboratory diagnosis</p> <p>,P.Malariae</p> <p>Morphology,Life cycle, Pathogenecity, Clinical features,Laboratory diagnosis,</p> <p>P.Ovale</p> <p>:- Morphology,Life cycle, Pathogenecity, Clinical features,Laboratory diagnosis</p> <p>Leishmania donovani</p> <p>:-Morphology,Life cycle, Pathogenecity, Clinical features,Laboratory diagnosis</p>		<p>Tutorials</p> <p>Debate</p> <p>Multimedia presentation</p>
106	August	<p><u>Helminths</u></p> <p>A)Cestodes</p> <p>Taenia saginata</p> <p>Taenia solium</p> <p>Echinococcus</p> <p>B)Trematodes</p> <p>C)Nematodes</p> <p>Ancylostoma doudenale</p> <p>Ascaris lumbricoides</p>	12	
107	September	<p>Enterobius vermicularis</p> <p>Wuchereia Bancroft</p> <p>Dracunculus medinensis</p>	9	
108		<p><u>Virology</u></p> <p>Introduction</p>		

		Classification of viruses General properties of viruses Morphology and replication of viruses:- Size of viruses,structure		
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109	October	<u>DNA viruses</u> Herpes virus Hepatitis virus:- a)Hepatitis A virus b)Hepatitis B virus c)Hepatitis C virus Pox virus	13	Chalk – Talk method (black board / Lecture) Group Discussion Seminar Tutorials Debate Multimedia presentation
110		<u>RNA viruses</u> Orthomyxo virus :- Influenza virus Entero virus :- Polio virus Rhino virus Paramyxovirus:- Rubeola(Measles) Mumps virus Rhabdo virus:- Rabies virus Rubella virus:- German measles Reto virus :- Human immunodeficiency virus Dengue virus		

		Chikungunya virus		
111		<u>Clinical Microbiology</u> Clinically important micro-organism Immunoprophylaxis:- Artificial active immunity Vaccines:- Live and Killed vaccines- Features		
112		<u>Infection and disease</u> Types and sources of infection, Modes of transmission of infection		
113		<u>Disinfection and Sterilisation:-</u> Defination of terms		
114	November	Agents of sterilization a)Flaming b)Pasteurization c)Hot air oven d)Autoclave e)Filtration f)Radiation g)Disinfectant Uses of Phenol, Methyl alcohol, Iodine, Chlorine Formaldehyde, Glutaraldehyde, Ethylene oxide	6	
115		<u>Histopathology:-</u> Histopathological techniques e.g. fixation, Embedding, sectioning and staining by common dyes and stains. Frozen sections and their importance		

Sr. No.	Months	Name of the Topic	No. of Lectures	Teaching & learning Method
		<u>Practicals</u>		Demonstration & Practical's
116	January	<u>Clinical and chemical pathology :-</u> Estimation of Haemoglobin Blood grouping,ESR Bleeding Time,Clotting Time	6	
117	February	Total Count-RBC,WBC,Differential counts	12	
118	March	<u>Urine Examination:-</u> Physical examination Chemical examination Microscopic examination	12	
119	April	<u>Examination of Faeces:-</u> Physical examination Chemical examination -occult blood Microscopic examination-ova and protozoa	04	
120	June	Gram staining ZN-staining (Acid fast staining)	12	
121		<u>Methods of sterilization:-</u> Hot air oven,Autoclave,Flaming		
122	July	<u>Preparation of Culture Media:-</u> Nutrient agar,Mac conkey's agar,Blood agar	5	
123		<u>Widal Test</u> Demonstration		
124		<u>Demonstration of equipments:-</u> Auto-analyzer,		

		Cell counter Glucometer		
125	August	<u>a)Histopathology:-</u> Demonstration of slides Acute appendicitis Chronic appendicitis Granulation tissue TB lymph node, TB lungs Fatty liver		
126	September	Colloid goiter Fibroadenoma breast Basal cell Ca Squamous cell Ca Squamous papilloma Osteosarcoma bone		

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127	October	<u>b)Demonstration of Pathological specimens</u>	12	Demonstration & Practical's
128	November	<u>c)Demonstration of Histopathological techniques :-</u> Fixation Embedding	5	
129		<u>d)Sectoning,staining by commen dyes and stains :-</u>		

		frozen section and its importance		
130		<u>e)Demonstration</u> Electron microscopy,Phase contrast microscopy		