

STUDY GUIDE OF 3RD YEAR MBBS GENERAL PATHOLOGY

General Pathology:

**THEME : CELLULAR RESPONSES TO STRESS and TOXIC
INSULTS: ADAPTATION, INJURY AND DEATH**

SUB THEME: Cellular Adaptation

1. Define with examples
 - a. Hyperplasia
 - b. Hypertrophy
 - c. Atrophy
 - d. Metaplasia
2. Describe the mechanism of above adaptations.

SUB THEME: Cell injury

3. Define cell injury. Enlist causes of cell injury.
4. Differentiate between reversible and irreversible injury.
5. Describe morphological alterations in cell injury.
6. Describe mechanisms of cell injury and its clinicopathological correlations.

SUB THEME: Necrosis, Apoptosis & Necroptosis.

7. Define Necrosis and brief discussion of caseous, liquefactive, coagulative and gangrenous necrosis.
8. Define apoptosis and name its pathways.
9. Differentiate between necrosis and apoptosis.
10. Describe the mechanism of apoptosis.
11. Define necroptosis and its mechanism.

SUB THEME: Autophagy

12. Define autophagy with examples
13. Describe its steps

SUB THEME: Intracellular Accumulations & Pigmentations

14. Name the types of accumulations in cells with examples.
15. Define pigmentation and its types along with examples.
16. Differentiate between exogenous and endogenous pigmentation.

SUB THEME: Calcification

17. Define calcification
18. Name the types along with examples of types of calcification.
19. Differentiate between metastatic and dystrophic calcification. SUB THEME: Aging
20. Define aging.
21. Name mechanisms of aging.

THEME : INFLAMMATION AND REPAIR

SUB THEME: Acute Inflammation

At the end of the session, students will be able to:

1. Define acute inflammation and discuss briefly its vascular events and cellular events and enlist the chemical mediators of acute inflammation.

2. Describe morphological patterns and outcomes of acute inflammation. **SUB THEME: Chronic Inflammation**

3. Define granulomatous and non-granulomatous chronic inflammation with examples.

4. Describe morphological features of chronic inflammation

5. Describe the cells and mediators of chronic inflammation.

6. Tabulate the causes of granulomatous inflammation.

7. Describe the role of macrophages in inflammation & repair

8. Enlist systemic effects of inflammation.

SUB THEME: Tissue Repair

9. Define repair, regeneration and scar formation.

10. Enumerate the types of cells involved in regeneration according to their proliferative capacity.

11. Describe the mechanism of tissue regeneration with example of liver.

12. Enlist the steps of scar formation alongwith its main components and growth factors involved.

13. Describe the factors affecting wound healing.

14. Define healing by primary and secondary intention.

15. Differentiate between primary and secondary healing.

16. Enlist pathological aspects of repair.

THEME : HEMODYNAMIC DISORDERS, THROMBOEMBOLIC

DISEASES, AND SHOCK

SUB THEME: Edema and Effusion

At the end of the session, students will be able to:

1. Define edema and tabulate pathophysiological categories of edema
2. Illustrate with diagram mechanism of systemic edema in heart failure.

SUB THEME: Hyperemia & congestion

3. Define hyperemia and congestion and differentiate between the two.

SUB THEME: Hemostasis, hemorrhagic disorders and thrombosis

4. Define thrombosis and Virchow's triad.
5. Tabulate primary and secondary hypercoagulable states.
6. Describe morphology of arterial and venous thrombi and differentiate between two
7. Differentiate between antemortem and postmortem clot.
8. Enlist the fate of thrombus.

SUB THEME: Embolism

9. Define embolism and briefly describe its types along with mechanisms.

SUB THEME: Infarction

10. Define infarction.
11. Describe the morphology of red and white infarct
12. Enumerate the factors that influence the development of an infarct

SUB THEME: Shock

13. Define shock and briefly describe three types.
14. Illustrate with the help of diagram the pathogenesis of septic shock
15. Give a brief account of stages of shock.

THEME : GENETIC DISORDERS

At the end of the session, students will be able to:

1. Define mutation
2. Describe the features and examples of the following
 - Autosomal dominant disorders
 - Autosomal recessive disorders
 - X-linked disorders
3. Give brief account of
 - Marfan syndrome
 - Ehlers-Danlos syndrome
 - Down syndrome
 - Klinefelter syndrome

- Turner syndrome
- 4. Give brief account of steps of PCR.

THEME : DISEASES OF IMMUNE SYSTEM

SUB THEME: The normal immune response

At the end of the session, students will be able to:

1. Define innate and adaptive immunity along with their features
2. Describe MHC

SUB THEME: Hypersensitivity

3. Define and briefly describe the four types of hypersensitivity reactions along with examples

SUB THEME: Autoimmune diseases

1. Define autoimmunity and give its examples
2. Briefly describe immunological tolerance
3. Briefly describe HIV and Amyloidosis

THEME : NEOPLASIA

At the end of the session, students will be able to:

1. Define the following with examples
 - Neoplasia
 - Oncogenes
 - Proto-oncogenes
 - Oncoproteins
2. Give an account of nomenclature of benign and malignant tumors.
3. Enlist the pathways of spread of tumor.
4. Tabulate the differences between benign and malignant tumors with examples.
5. Tabulate the differences between carcinoma and sarcoma.
6. Enlist cellular and molecular hall marks of cancer.
7. Describe tumor suppressor genes and their examples
2. Define chemical carcinogenesis along with examples and enlist steps involved
3. Define microbial carcinogenesis along with examples.
4. Define and give examples of paraneoplastic syndromes
5. Define grading and staging of cancer and differentiate between two
6. Describe laboratory diagnosis of cancer
7. Define tumor markers along with examples

Study Guide of Microbiology 3rd Year MBBS

BACTERIOLOGY

THEME: GENERAL BACTERIOLOGY

SUBTHEME: INTRODUCTION TO MICROBIOLOGY

1. Describe characteristics of prokaryotes & eukaryotes.
2. Classify bacteria.
3. Describe shape & size of bacteria.

SUBTHEME: STRUCTURE OF BACTERIAL CELLS & GROWTH

1. Describe important components of bacterial cell (cell wall, cell membrane, nucleoid, ribosomes, pilli, flagella, plasmids, trasposons, spores)and briefly write their functions.
2. Describe Gram negative and a Gram positive bacterial cell wall.
3. Describe concepts of Gram and ZN staining.
4. Classify and enlist important groups of bacteria on the basis of staining and use of oxygen.
5. Illustrate & explain different phases of bacterial growth curve.

SUBTHEME: BACTERIAL PATHOGENESIS & NORMAL FLORA

1. Describe types of infection.
2. Explain stages of bacterial pathogenesis in detail.
3. Tabulate the differences between exotoxins and endotoxins.
4. Describe members & anatomical location of normal flora.

5. Define colonization resistance.

SUBTHEME: STERILIZATION & DISINFECTION.

1. Define sterilization and disinfection.

2. Write down various methods of sterilization using moist and dry heat.

3. Write down the principle and uses of:

- Autoclave
- Hot air oven
- Flaming
- Boiling
- Incineration
- Pasteurization
- Radiations

4. Enlist various methods of sterilization with their uses and principles.

5. Write down the mechanism of action and uses of following disinfectants

- Hypochlorite,
- Phenol,
- Alcohol, Ethylene oxide & Formaldehyde/ Glutaraldehyde

SUBTHEME: PRINCIPLES OF ANTIMICROBIAL ACTION, RESISTANCE & BACTERIAL

GENETICS

1. Define bacteriostatic & bactericidal.
2. Define Minimum inhibitory concentration & minimum bactericidal concentration.
3. Describe mode of action of following antibiotic groups:
 - Beta-lactams
 - Glycopeptides
 - Lipopeptides
 - Aminoglycosides
 - Polymyxins
 - Fluoroquinolones
 - Sulfonamides
 - Macrolides
 - Tetracyclines
 - Antiaerobic agents
4. Enlist mechanisms of bacterial drug resistance.
5. Explain mechanisms of gene transfer between bacterial cells.

THEME: BASIC VIROLOGY

SUBTHEME: STRUCTURE & REPLICATION OF VIRUSES

1. Compare viruses & bacteria.
2. Describe structure of viruses.
3. Enlist viral replication steps.

4. Classify viruses.
5. Define atypical virus like agents.
6. Describe general viral laboratory diagnosis.

THEME: BASIC MYCOLOGY:

SUBTHEME: STRUCTURE OF FUNGI AND LAB. DIAGNOSIS OF FUNGI

1. Compare bacteria & fungi
2. Describe general structure & classification of fungi.
3. Describe general laboratory diagnosis of fungi.

THEME: SPECIAL BACTERIOLOGY, VIROLOGY & MYCOLOGY

SUBTHEME: COMMON MICROORGANISMS CAUSING SKIN & SOFT TISSUE

INFECTIONS

1. Enumerate skin infection producing bacteria.
2. Explain virulence factors, transmission pathogenesis, clinical features & laboratory diagnosis of:
 - Staph. aureus (MRSA)
 - Staph epidermidis
 - Strept. pyogenes
 - Strept. viridans
 - Clostridia
 - E. coli

- Pseudomonas
- Proteus
- Actinomyces israelii
- Nocardia asteroides
- Mycobacterium leprae & tuberculosis
- Tinea/ Dermatophytes
- Cutaneous & subcutaneous mycoses producing fungi
- Candida albicans
- Leishmania species
- Schistosoma
- D. medinensis
- W. bancrofti
- Herpes simplex-1
- Varicella zoster
- Measles
- Rubella
- Moluscum contagiosum

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SUBTHEME: COMMON MICROORGANISMS PRODUCING CNS INFECTIONS

1. Enumerate causes, pathogenesis & clinical features of acute, chronic meningitis & encephalitis.

2. Compare CSF findings of viral, bacterial & fungal meningitis.

3. Explain transmission pathogenesis, clinical features & lab diagnosis of:

- *Strept.pneumoniae*
- *Strept.agalactiae*
- *Nisseriameningitidis*
- *Haemophilusinfluenzae*
- *E. coli*
- *L. monocytogenes*
- *Mycobacterium tuberculosis*
- Enteroviruses
- Mumps
- Herpes simplex
- Adenovirus
- *C. neoformans*
- Rabies
- Herpes simplex
- Malaria
- *Toxoplasma*

SUBTHEME: COMMON MICROORGANISMS PRODUCING GIT INFECTIONS

1. Enlist organisms producing diarrhea and dysentery.
2. Explain virulence factors, transmission pathogenesis, clinical features & lab diagnosis of:

- E. coli
- Salmonella
- Shigella
- Vibrio cholerae & other Vibrio species
- Helicobacter pylori
- Campylobacter jejuni
- Clostridium species
- Entamoeba histolytica
- Giardia lamblia
- Cryptosporidium parvum
- Diphylobothrium latum
- Hymenolepis nana
- Ancylostoma duodenale
- Necator americanus
- Ascaris lumbricoides
- Enterobius vermicularis

- Trichiuristrichiura
- Trichinellaspirealis
- Polio
- Hepatitis A, E
- Norwalk & Rotavirus

3. Discuss etiology, pathogenesis & laboratory diagnosis of common organisms effecting liver:

- Hepatitis A
- Hepatitis B
- Hepatitis E
- Hepatitis C
- Hepatitis D
- Hepatitis G
- CMV
- EBV

SUBTHEME: MICROORGANISMS PRODUCING URINARY TRACT INFECTION

1. Enlist organisms responsible for UTI.

2. Discuss pathogenesis, clinical features& laboratory diagnosis of E. coli, Proteus, Pseudomonas

aeruginosa, Klebsiella, Staph. saprophyticus, Ureaplasmaurealyticum.

SUBTHEME: COMMON MICROORGANISMS PRODUCING RESPIRATORY TRACT

INFECTION

1. Enlist organisms producing upper & lower respiratory tract infection.

2. Name organisms producing typical & atypical pneumonia.

3. Discuss pathogenesis, clinical features & laboratory diagnosis of:

- Mycobacterium tuberculosis
- Streptococcus pneumoniae
- Mycoplasma pneumoniae
- Legionella pneumoniae
- Haemophilus influenza
- Klebsiella
- Corynebacterium diphtheria
- Bordetella
- Influenza & para influenza viruses
- RSV
- Rhinovirus
- Measles
- Pneumocystis carinii
- Aspergillus

SUBTHEME: SEXUALLY TRANSMITTED INFECTIONS

1. Enlist organisms responsible for STIs.
2. Discuss pathogenesis, clinical features, mode of transmission & laboratory diagnosis of:
 - *Neisseria gonorrhoea*
 - *Treponema pallidum*
 - *Chlamydia trachomatis*
 - *Mycoplasma hominis*
 - *Candida albicans*
 - *Trichomonas vaginalis*
 - Hepatitis B
 - HIV
 - Herpes simplex –II

SUBTHEME: ZOONOTIC

1. Discuss important properties of *Rickettsia*, *Leptospira* & *Brucella*

THEME: IMMUNOLOGY

SUBTHEME: INTRODUCTION TO IMMUNOLOGY:

1. Discuss main functions of immune system
2. Discuss components & features of innate & acquired immunity.

SUBTHEME: ACTIVE & PASSIVE IMMUNITY

1. Define active & passive immunity.
2. Discuss mediators of active & passive immunity.

3. Discuss vaccination.

SUBTHEME: CELLULAR BASIS OF IMMUNE RESPONSE

1. Discuss origin, development & differentiation of cell lineages.
2. Explain origin, type, structure & biological importance of MHC proteins.

SUBTHEME: THYMIC EDUCATION

1. Discuss thymic education, expression of TCR, positive & negative selection.

SUBTHEME: T-CELLS

1. Discuss two types of T cells.
2. Explain regulatory & effector functions of T cells.
3. Compare features of Th-1 and Th-2 cells.
4. Discuss activation, inhibition of T cells.
5. Define anergy.
6. Explain mechanism of action of superantigen.

SUBTHEME: ANTIBODIES & B- CELLS

1. Discuss antibody structure & compare its classes.
2. Discuss antibodies class switching.
3. Discuss variations of antibodies; isotypes, idiotypes&allotypes.
4. Discuss functions & maturation of B cells.
5. Discuss clonal selection.

6. Discuss activation of B cells

7. Discuss importance of lymphokines in class switching.

SUBTHEME: HYPERSENSITIVITY REACTIONS

4. Define hypersensitivity.

5. Discuss and illustrate mechanism involved in type I,II,III & IV hypersensitivity reactions.

6. Explain clinical manifestation & mediatorsinvolved in type I, II, III & IV hypersensitivity

Reactions

STUDY GUIDE OF 4TH YEAR MBBS SPECIAL PATHOLOGY

TOPICS	LEARNING OUTCOMES
Cardiovascular System	<p>THEME: Blood vessels Subtheme: Atherosclerosis Define & Briefly discuss the causes of Atherosclerosis.</p> <p>Subtheme :Hypertension Define & Briefly discuss the types and causes of Hypertension.</p> <p>Subtheme :Vasculitis Define and classify vasculitis.</p> <p>Subtheme :Aneurysms Define and classify aneurysms.</p> <p>Subtheme :Tumors of blood vessels Classify benign and malignant tumors of blood vessels</p> <p>THEME :HEART Subtheme: Valvular Heart Disease Describe rheumatic fever with respect to • Etiology • Pathogenesis • Morphological & clinical features Define rheumatic fever and briefly discuss its pathogenesis and clinical features. Define and Classify endocarditis and write down the diagnostic criteria for endocarditis.</p> <p>Subtheme: Cardiomyopathies and myocarditis List the causes of myocarditis • Describe morphological and clinical features of myocarditis. Describe the three major clinico-pathological groups of cardiomyopathy (dilated, hypertrophic and restrictive)</p> <p>Subtheme :Ischemic Heart Disease & Arrhythmias Describe the pathogenesis of ischemic heart disease. Describe myocardial infarction with respect to the following • Sequence of changes in myocardial infarction (MI) • Pattern of elevation of biochemical markers used in the evaluation of M.I • Complications List the causes of sudden cardiac death Describe cor-pulmonale and list the predisposing disorders • List the causes of pericarditis Describe the clinical and morphological feature of pericarditis • List the primary & secondary cardiac tumours Describe the main features of Fallot's tetralogy and coarctation of aorta.</p> <p>Subtheme: Tumors of heart Describe morphology of myxoma.</p>
Respiratory System	<p>THEME:THE LUNG</p> <p>Subtheme: Obstructive and restrictive lung diseases</p>

	<p>Describe the etiology pathogenesis, morphology & clinical features of asthma. Describe various types of emphysema, its pathogenesis, morphology and clinical features. Describe pathogenesis and clinical features of chronic bronchitis. • Describe the predisposing factors, pathogenesis, morphology & clinical features of bronchiectasis. List the clinical conditions associated with restrictive lung diseases. Describe the pathogenesis, morphology & clinical features of adult respiratory distress syndrome. Describe the pathogenesis, morphology & clinical features of sarcoidosis and hypersensitivity pneumonitis. Describe pneumoconioses with respect to etiology, pathogenesis . Describe the pathogenesis, morphology and clinical features of idiopathic pulmonary fibrosis.</p> <p>Describe clinical features of Goodpasture's syndrome. Subtheme: Pulmonary Diseases of Vascular Origin</p> <p>List the pathogenesis, morphology & clinical features of thromboemboli. Describe the morphology & clinical features of pulmonary infarction. List the causes of pulmonary hypertension and vascular sclerosis. Subtheme:Pulmonary infections Describe the etiology, pathogenesis, morphology & clinical features of acute bacterial pneumonia. List the micro-organisms causing atypical pneumonia. Discuss the etiology, pathogenesis & clinical features of tuberculosis of the lung. List the Fungi (candida, pneumocystis carinii) causing lung infections. Briefly discuss the etiology of lung abscess and pleural effusion. Subtheme.:Lung &Pleural tumors Describe the classification, etiology, pathogenesis and clinical features of bronchogenic carcinoma. Describe paraneoplastic syndrome associated with lung tumors. Describe etiology & pathogenesis of mesothelioma. Discuss morphological features of mesothelioma. Give differences between adenocarcinoma and mesothelioma.</p>
<p>Integumentary system</p>	<p>THEME:THE SKIN Define macule, papule, nodule, plaque, vesicle, bulla, blister, pustule, ulceration, hyperkeratosis, acanthosis and erosion. Enlist the names and clinical picture of acute and chronic inflammatory dermatoses. Define thermal injuries of skin and briefly outline their causes. Describe morphology of squamous cell and basal cell carcinoma</p>

<p>Musculoskeletal system & Bones and joints</p>	<p>Theme: Bone and joints Subtheme: Disorders of bone development Define Osteoporosis, osteomalacia, rickets, paget's disease, osteomyelitis and enlist causes of each of this condition. Subtheme: Bone tumors Classify bone tumors Briefly describe morphology of ewings sarcoma with genetics.. Subtheme :Arthritis Define and briefly discuss etiology, pathogenesis, morphology and clinical features of: A: rheumatoid arthritis B: Gouty arthritis C: Infectious arthritis D: Seronegative arthritis Theme: Neuromuscular system Define and classify diseases of peripheral nerves. Define and classify muscular dystrophies and briefly discuss etiology and pathogenesis of Duchenne and Becker muscular dystrophies. Define and classify Myopathies. Define Myasthenia gravis and briefly discuss its pathogenesis and clinical course.</p>
<p>CNS</p>	<p>Subtheme :Infectious diseases Classify infectious diseases of brain. Briefly discuss their etiology and clinical features. Define and classify degenerative and demyelinating diseases of CNS and briefly discuss the etiology, pathogenesis and clinical feature of:</p> <ul style="list-style-type: none"> • Amyotrophic Lateral Sclerosis • Alzheimer's Disease, Alzheimer's Dementia, and Variants • Dystonia • Huntington's Disease • Multiple Sclerosis • Parkinsonism and Parkinson's Disease <p>Subtheme :Cerebrovascular disease Define, classify and briefly discuss cerebrovascular diseases. Subtheme :CNS tumors Classify CNS tumors. Give who grading of Brain tumors. .Enlist variants of meningioma.</p>

<p>Urinary system</p>	<p>THEME: The Kidney Subtheme: Glomerular Diseases_&Diseases Affecting Tubules and Interstitium Define the terms: • Azotemia • Uremia • Acute renal failure • Chronic renal failure Discuss the types, genesis, basis, clinical features and complications of polycystic kidney disease. Describe different types and pathogenesis mechanisms of glomerulonephritis. Differentiate between nephrotic and nephritic syndrome. List the diseases included in these categories, their etiology and pathogenesis mechanisms (membranous, minimal change, membranoproliferative & acute poststreptococcal glomerulonephritis). Discuss the etiology, clinical course, pathogenesis and complications of acute pyelonephritis. Discuss pathogenesis mechanism, morphology clinical features and complications of chronic pyelonephritis. Define acute tubular necrosis, its pathogenesis and clinical course. Differentiate between benign and malignant nephrosclerosis. (on the basis of clinical date). Discuss the pathogenetic mechanism, morphology and clinical course of chronic pyelonephritis(Gross & microscope picture). Discuss the pathogenesis, clinical features and lab diagnosis of nephrolithiasis. List the various types of renal stones. Define hydronephrosis, what are its causes, clinical features and complications. Subtheme: Cystic Diseases of the Kidney Describe congenital and acquired kidney cystic disease. Subtheme:Renal tumors Discuss the epidemiology, morphology and clinical features (paraneoplastic syndrome) of renal cell carcinoma. Describe the clinical features, morphology and prognosis of Wilm's tumour. Subtheme :Urinary bladder Describe the etiology, morphology & clinical features of cyctitis. Describe the clinical features, etiology and morphology of transitional cell carcinoma of the urinary bladder.</p>
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<p>Oral cavity & Gastrointestinal tract</p>	<p>Subtheme: Oral cavity Define the term leukoplakia. Discuss the risk factors of oral cancer. Describe the clinical and morphological feature of oral cancer. List the benign and malignant tumours of salivary glands. Describe the clinical and morphological features of pleomorphic adenoma.</p> <p>Subtheme: Esophagus & Stomach Discuss morphological features of Barrett's esophagus. List the predisposing factors associated with acute gastritis. Describe the pathogenesis and clinical features of acute gastritis. Describe the pathogenesis, morphological and clinical features of chronic gastritis. Give differences between autoimmune & H. pylori gastritis. Describe the pathogenesis, morphological and clinical features of peptic ulcer. • Describe the gastric carcinoma with respect to • Risk factors • Pathogenesis • Clinical and morphological features • Prognosis . Give morphology of GIST and gastric adenocarcinomas.</p> <p>Subtheme: Intestine Describe the clinical and morphological features of Hirschsprung's disease. Describe the pathogenesis, morphological and clinical features of • Celiac sprue & Tropical sprue & Whipple's disease Describe the predisposing conditions for ischemic bowel disease. Describe the clinical and morphological features of ischemic bowel disease. Differentiate between Crohn's disease and ulcerative colitis. • List the major causes of intestinal obstruction. • Describe the clinico-pathological features of following diseases of intestine • Amebiasis • Tuberculosis • Typhoid List the non-neoplastic polyps of intestine. Classify adenomas on the basis of epithelial architecture. Describe the clinical and morphological features of adenomas. Discuss various Gastrointestinal syndromes associated with adenomas. Discuss the pathogenesis of colorectal carcinoma. Describe the morphological and clinical features of colorectal carcinoma. Describe the Aster-Collar classifications of carcinoma of the colon and rectum. Describe carcinoid tumour with respect to the • Peak incidence • Most prevalent sites in the gut • Morphological features. Describe the clinical features of carcinoid syndrome. Describe morphological features of leiomyomas. Describe the etiology, pathogenesis, morphological and clinical features of acute appendicitis.</p> <p>Subtheme: Appendix List the tumours of appendix.</p>
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<p>Hepatobiliary system</p>	<p>Subtheme : Liver Describe the types of jaundice with respect to the following: • Causes • Clinical features • Lab diagnosis Differentiate between intrahepatic and extrahepatic biliary obstruction. • List the causes of hepatic failure. Describe the morphological and clinical features of hepatic failure. Describe the important complication of liver failure (hepatic encephalopathy, hepatorenal syndrome). List the common causes of cirrhosis (viral hepatitis, cryptogenic, alcohol, biliary disease, genetic hemochromatosis, Wilson's disease, alpha-1 anti-trypsin deficiency). Discuss the pathogenesis of cirrhosis. Describe the complications of cirrhosis (progressive liver failure, portal hypertension, hepatocellular carcinoma). Differentiate among viral hepatitis A, B, C, D and E with respect to • Route of transmission • Incubation period • Clinical features. • Potential outcome of acute infection. • Define carrier state and differentiate between acute and chronic hepatitis. List the common causes of liver abscess (amebic, echinococcal, bacterial, fungal). Describe clinical and morphological features of liver abscess. List the drugs and toxins which cause hepatic injury along with their specific effects. Discuss the pathogenesis of alcohol liver disease. Describe the morphological and clinical features of alcoholic hepatitis and cirrhosis. List the causes of secondary hemochromatosis. Describe the pathogenesis, morphological and clinical features of hemochromatosis. Discuss the clinico-morphological features of Wilson's disease. Describe the clinico-morphological features of alpha-1 anti-trypsin deficiency. List the causes of neonatal hepatitis. Differentiate between primary and secondary biliary cirrhosis. • Discuss the epidemiology, pathogenesis, morphological and clinical features of hepatocellular carcinoma. Enlist preneoplastic conditions of HCC. Describe variants of Hepatocellular carcinoma.</p> <p>Subtheme: Biliary tract Describe the pathogenesis and risk factors of cholelithiasis. Describe the morphological and clinical features of acute and chronic cholecystitis. • Describe clinical and morphological features of gall bladder carcinoma</p> <p>Subtheme:Pancreas Describe acute pancreatitis with respect to • Etiology and pathogenesis • Clinical and morphological features. Describe the clinical and morphological features of chronic pancreatitis. Describe the clinical and morphological features of carcinoma of pancreas.</p>
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<p>Female genital system</p>	<p>Subtheme :Uterus & Fallopian tubes Classify the neoplasms of cervix with special reference to cervical intraepithelial neoplasia. Describe the clinical features and pathogenesis of adenomyosis and endometriosis. Describe the causes, pathogenesis and clinical features of dysfunctional uterine bleeding with special reference to endometrial hyperplasia, endometrial polyp and carcinoma. Tabulate differences between type I and type II endometrial carcinoma. Describe morphology of leiomyoma. Subtheme: Pregnancy • Describe the etiology, clinical features and pathogenesis of ectopic pregnancy and toxemia of pregnancy. • Classify gestational trophoblastic tumours with special reference to their clinical features. Differentiate between complete and partial mole. Describe morphology of choriocarcinoma Subtheme: Ovary Classify ovarian tumors.</p>
<p>Breast</p>	<p>• List the causes of lump in the breast and discuss etiology, pathogenesis, morphology, clinical features and natural history of • Mastitis • Fibrocystic disease of the breast Benign tumours of the breast (Fibroadenoma and Phyllodes tumour) • Carcinomas of the breast (Ductal and Lobular) Describe molecular classification of breast tumors. List the causes of nipple discharge with special reference to intraductal papilloma. Describe gynaecomastia, and list its causes</p>
	<p>Subtheme:Pituitary gland List the causes of hyperpituitarism.</p>

<p>Endocrinology</p>	<p>Describe the morphology and clinical features of pituitary adenomas. Describe the clinical features of acromegaly and gigantism. List the causes of hypopituitarism. Describe the etiology, pathogenesis and clinical features of Sheehan’s syndrome Describe the etiology factors, clinical features, pathogenesis and lab findings in inappropriate secretion of ADH. Subtheme:Thyroid &Parathyroid glands List the etiology and clinical features of hyperthyroidism. • List the etiology and clinical features of hypothyroidism including Cretinism and Myxedema. Discuss the investigation/lab tests for diagnosis of thyroid dysfunction. Define goiter and list its types (diffuse and multinodular). Describe the etiology, pathogenesis and clinical features of diffuse and multinodular goiter. List the causes of solitary thyroid nodule and discuss the diagnostic approach. Describe the types, with pathogenesis, morphology and clinical features of thyroiditis with special reference to auto-immune thyroiditis (Hashimoto’s thyroiditis and Grave’s disease). Classify the etiology, pathogenesis, morphology and clinical features of • Follicular adenoma • Papillary carcinoma • Follicular carcinoma • Medullary carcinoma. • List the types of MEN syndromes. Differentiate between follicular adenoma & carcinoma Describe genetics and morphological features of medullary carcinoma . Subtheme: Parathyroid gland List the etiologic factors and clinical features of hyperparathyroidism. List the etiologic factors and clinical features of hypoparathyroidism Differentiate between primary, secondary and tertiary hyperparathyroidism. Discuss calcium haemostasis and causes of hyper and hypocalcemia. Subtheme: Adrenal gland &medulla List the causes of adrenal cortical hyperfunction. .Describe the etiology, pathogenesis clinical features and lab diagnosis of • Conn’s syndrome • Adrenogenital syndrome. .List the causes of hypofunction of adrenal cortex. Describe the etiology, pathogenesis, and clinical features of Addison’s disease. List the tumours of adrenal medulla and cortex. • Describe the clinical features and diagnosis of pheochromocytoma. .Differentiate between Diabetes Mellitus type I and II</p>
<p>Male genital system</p>	<p>Subtheme:Testis .Describe morphological features of seminomas. Describe differences between yolk sac tumors and embryonal carcinoma.</p> <p>Subtheme: Prostate .Describe morphological features of Benign prostatic hyperplasia Give microscopic features of Prostatic adenocarcinoma and briefly describe gleasons scoring.</p>

Clinical Chemistry	<p>Renal functions. Give causes of proteinuria and its lab diagnosis. Give Lab diagnosis of acid base disorders. Lab diagnosis of diabetese mellitus. Liver function tests. Lab diagnosis of hyperlipidaemia and its clinical interpretation. Role of enzymes in diagnosis of pancreatitis. Lab diagnosis of inborn errors of metabolism. .Lab diagnosis/investigations of endocrinic disorders:- i. Thyroid function tests. ii. Adrenal function test. iii. Lab diagnosis of hyper and hypoparathyroidism. iv. Role of hormone estimation in diagnosis of infertility. v. Role of hormone estimation in diagnosis of growth disorder.</p>
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THEME : RED BLOOD CELLS AND BLEEDING DISORDERS

SUB THEME: Red blood cells

Define and classify Anemias.

Morphology and Lab diagnosis of

- a)iron deficiency
- b)Vitamin B12 deficiency
- c)Aplastic Anemia

SUB THEME: Polycythemia

.Define and classify polycythemia.

Give Morphology and lab diagnosis of polycythemia

SUB THEME: Bleeding Disorders:

- 1. Classify Bleeding disorders
- 2. Describe morphology and lab diagnosis of ITP.
- 3. Classify bleeding disorders due to clotting factors deficiencies
- 4. Describe morphology and lab diagnosis of Hemophilia A

THEME : Diseases of WBCs ,lymph nodes,Spleen and Thymus

.SUB THEME: WBCs disorders:

a)Classify acute leukemias

b)classify chronic leukemias

c)describe morphology and lab diagnosis of chronic Myeloid Leukemia

d)Describe briefly clinical features ,morphology and Lab diagnosis of Multiple Myeloma

SUB THEME:Lymph nodes:

1.define and classify Lymphadenitis

2.Classify Hodgkin and Non Hodgkin Lymphomas

3.describe Immunohistochemistry of Hodgkin lymphoma

SUB THEME:Spleen and Thymus:

1.describe the causes of splenomegaly

2.classiy Thymomas