



# **SAHARA MEDICAL COLLEGE**

A Project of SAHARA for life trust

## **STUDY GUIDE**

### **DEPARTMENT OF PATHOLOGY (4<sup>th</sup> Year MBBS)**

**Professor Dr. Razi Uddin Ahmed**

Head of the Department

## **CERTIFICATE BY THE HEAD OF DEPARTMENT**

It is certified that the subject handbook of pathology study guide has been thoroughly reviewed by me and the required corrections have been made.

The handbook is prepared according to the requirements of Pakistan Medical & Dental Council.

Prof. Dr. Razi Uddin Ahmed

HOD Department

  
Signature

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# **2) University Vision, Mission**



## ***VISION UHS***

UHS is a leading medical university aiming to keep its graduates apt with the ever emerging global health challenges, evolving educational methodologies and emerging technological advancement to maintain its distinguishable position as a Medical University.



## **MISSION OF THE UHS**

UHS shall continue to strive for producing a human resource part at excellence to cater for the health needs of the people Punjab and Pakistan.

# **3) College**

## **Vision**

## **Mission**



## ***VISION***

“Qualitative and Quantitative Revolution in Medical Education and Research through Evolution and thereby improve Health Care delivery to populace.”





## **MISSION OF THE INSTITUTION**

Sahara Medical College, Narowal has its mission to produce medical graduates who abide by the rigor of scientific discipline and are altruistic, humane, knowledgeable, through research and evidence-based medicine, skillful and dutiful to their profession and the society at large.

# **4) Outcomes of MBBS Program**

## **COURSE OUTCOME (4<sup>th</sup> Year MBBS)**

### **Lectures:**

The student should be able to

1. Classify common diseases related to different systems of the human body
2. Enumerate the etiological factors causing different diseases
3. Relate the etiological factors with the causation of the disease.
4. Enlist key points of reaching at a specific diagnosis of a disease
5. Enumerate requisite investigations which are to be performed to reach at a specific diagnosis

### **Practical:**

The student should be able to

1. Enlist and Identify basic instruments used in Pathology laboratory.
2. Enumerate basic tests used in the diagnosis of different diseases.
3. Describe the protocols of routine investigations
4. Identify gross pathological changes in the tissues by looking at a specimen
5. Identify under the microscope diagnostic histological features of a disease
6. Draw and label the microscopic histology of a specific disease

# **5) Introduction of Department / faculty & organogram**

## **INTRODUCTION OF PATHOLOGY DEPARTMENT**

The primary goal of the pathology course is to initiate the medical student in the study of disease. Without a clear understanding of the etiology (cause), pathogenesis (development), pathological anatomy, and pathophysiology of disease, clinical medicine would mean little more to the student than memorization of clinical syndromes and the empirical treatments applied to them. These concepts are developed in close association with the other basic sciences and with the clinical science that is also being introduced at this time. This study guide will give an insight to the students about all these competencies for a good doctor and how to plan their educational activities in the subject of Pathology.

Pathology is a science of diseases, plays a role in the diagnosis of the disease and it serves as a bridge between patients and the clinicians. Its branches/subspecialties are Hematology which deals mainly with blood counts, peripheral smears, bone marrow examinations, PT and APTT samples. Microbiology includes cultures, semen, urine and stool analysis. The field of Histopathology is mainly concerned with FNAC and tissue biopsy interpretation. The chemical Pathology deals with all tests related to different compounds present in the blood like LFTs, RFTs, TFTs, and serum sugar.

Special Pathology is a subject that describes the cause, progression, and organ involvement, anatomic and functional change in the organ, clinical presentation and complications of the disease. It forms the basis of subject of Medicine. This subject is taught by using system based approach and all important and common diseases are covered in the syllabus.

Pathology Department of SMC run by well, highly qualified, experienced, faculty members. There are four Professors, four Associate Professors and four Assistant Professors. All four major Departments mainly Chemical pathology, Hematology, Histopathology and Microbiology are fully functional and well equipped. PCR facility is also available at clinical laboratory.

SMC pathology Department has two main set-ups. One is hospital lab built for patients and students; the other is located in college building for teaching and practice sessions for 3<sup>rd</sup> & 4<sup>th</sup> Year M.B.B.S students. The Paramedical staff is qualified and well trained. The results of emergency samples are reported within two hours' time period for appropriate treatment plans.

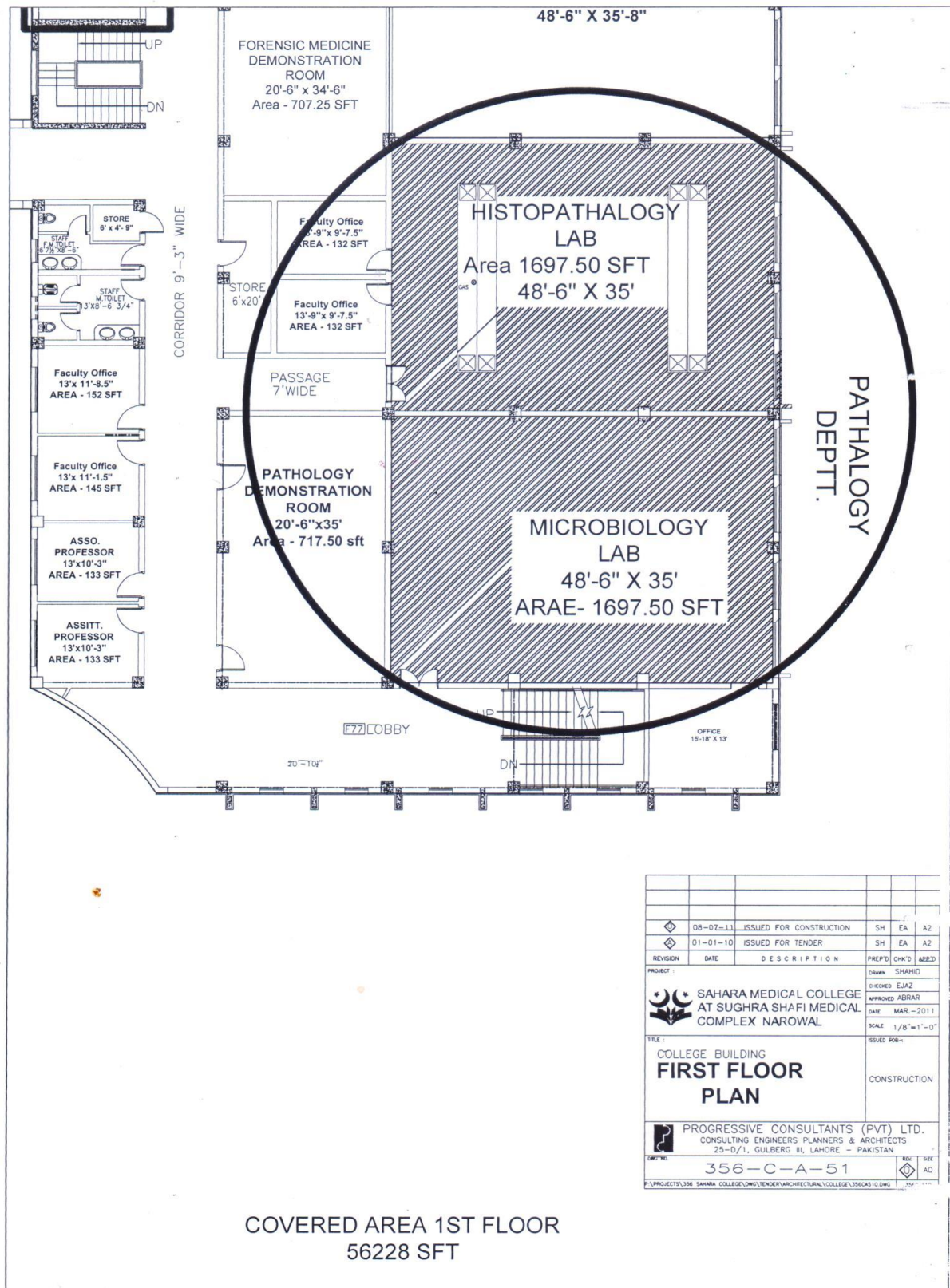
There are two main Labs for students and two Tutorial rooms with necessary instruments and furniture. There are offices for faculty members and room for Demonstrators.

### **COURSE REQUIREMENT**

Students need to have basic knowledge of Anatomy, Physiology, Biochemistry to understand the pathogenesis and laboratory diagnosis of different infectious diseases and pathological phenomenon of underlying diseases. The students also need to understand common diseases related to different systems of the human body.

### **TARGET AUDIENCE:**

- 4<sup>th</sup> year M.B.B.S student




## Organogram:

### DEPARTMENT ORGANOGRAM PATHOLOGY

101 Associate Professor 13 x 10.3	102 Associate Professor 13 x 10.3	103 (HOD) Professor 13 x 11.1	104 Professor 13 x 11.6	105 Wash Room	106 Wash Room	108 Professor 13 x 9.3
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Demonstration Room 124 36 x 20.6	(119) Store Room 06 x 20	Forensic Museum
	(121) Assistant Professor 13.9 x 9.7	
	(122) Senior Demo 13.9 x 9.7	
(125) Microbiology Lab 48.6 x 35	(120) Histopathology Lab 48.6 x 35	Museum 48.6 x 35.8
(126) Demo Room 15.1 x 13		

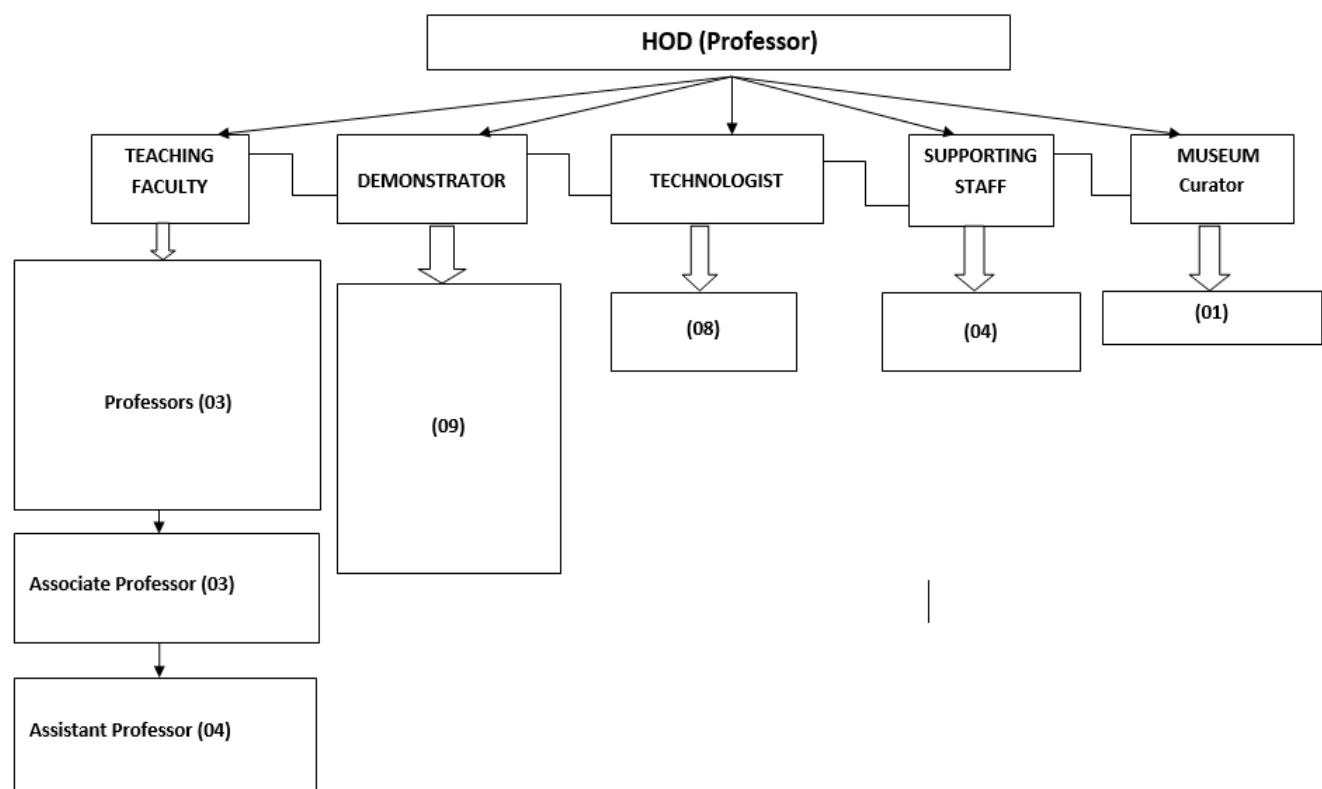


**FACULTY:**

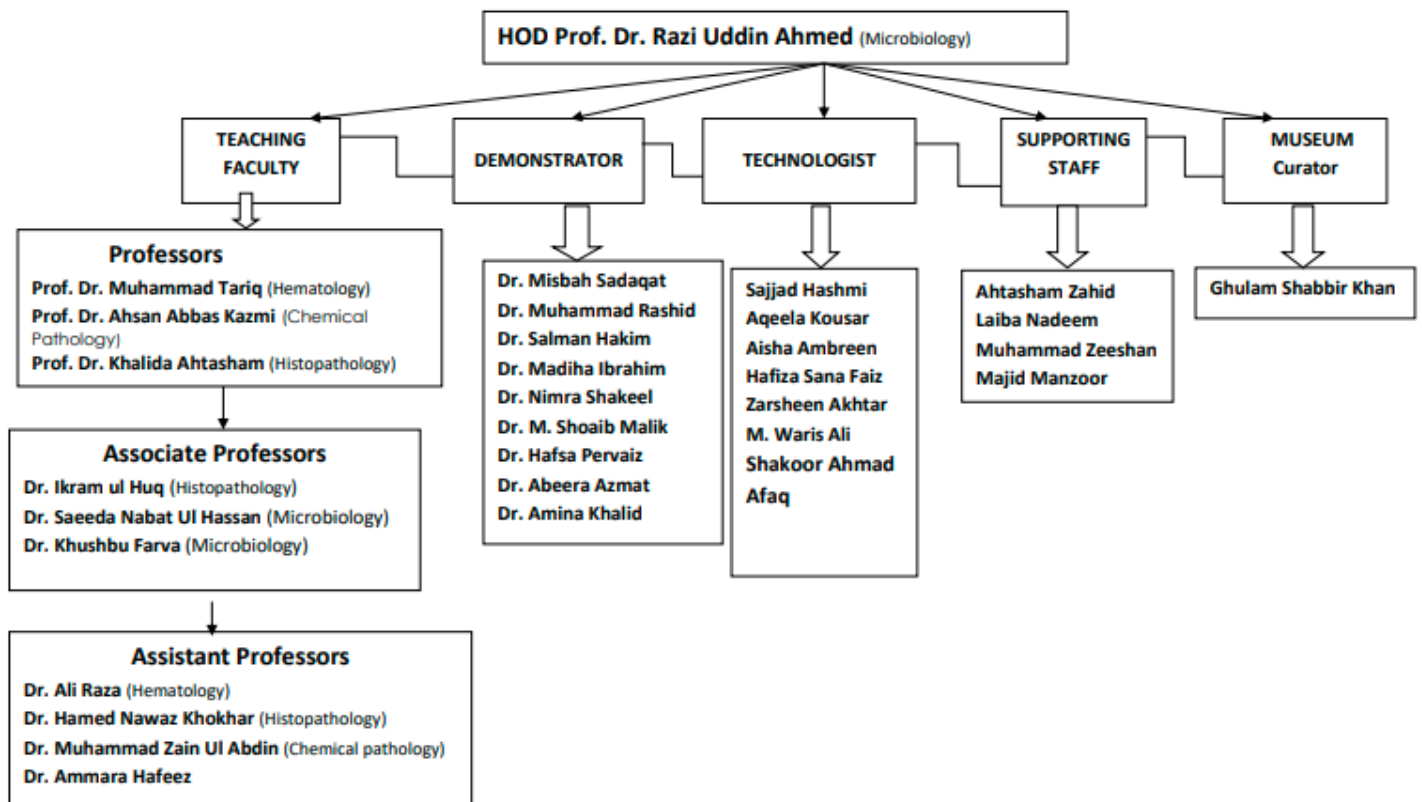
<b>Sr. #</b>	<b>Name</b>	<b>Qualification</b>	<b>Designation during PM&amp;DC</b>	<b>PM&amp;DC Registration Number</b>	<b>PM&amp;DC Faculty Registration Number</b>
<b>1.</b>	Razi Uddin Ahmed	M.B.,B.S., D.L.O. (OTO-Rhino- Laryngology), M.Phil (Microbiology), PhD- Microbiology	Professor	4198-S	5391/4198-S/M
<b>2.</b>	Muhammad Tariq	M.B.,B.S., M.C.P.S., (Pathology), Diploma in Clinical Pathology, M.Phil (Haematology)	Professor	7983-P	638/7983-P/M
<b>3.</b>	Khalida Ahtesham	M.B.,B.S., M.Phil (Morbid Anatomy / Histopathology)	Professor	17138-S	3090/17138-S/M
<b>4.</b>	Ahsan Abbas Kazmi	M.B.,B.S., M.Phil (Chemical Pathology)	Professor	16089-P	15092/16089-P/M
<b>5.</b>	Ikram Ul Haque	M.B.,B.S., M.Phil (Morbid Anatomy / Histopathology)	Associate Professor	5994-P	12369/5994-P/M
<b>6.</b>	Saeeda Nabat Ul Hassan	M.B.,B.S., M.Phil (Microbiology)	Associate Professor	57402-P	12166/57402-P/M
<b>7.</b>	Khushbu Farva	B.D.S, M.Phil (Microbiology)	Associate Professor	12159-D	15700/12159-D/D
<b>8.</b>	Hamed Nawaz Khokhar	M.B.,B.S., Dip In Clinical Pathology , M.Phil (Morbid Anatomy / Histopathology)	Assistant Professor	10877-P	27110/10877-P/M
<b>9.</b>	Muhammad Zain Ul Abdin	M.B.,B.S., M.Phil (Chemical Pathology)	Assistant Professor	66337-P	27466/66337-P/M
<b>10.</b>	Ali Raza	M.B.,B.S., M.Phil (Haematology)	Assistant Professor	56757-P	2969/56757-P/M
<b>11.</b>	Ammara Hafeez	M.B.,B.S., FCPS Haematology	Assistant Professor	77859-P	464567/77859-P/M
<b>12.</b>	Salman Hakim	M.D, M.Phil (Histo Pathology)	Senior Demonstrator	11321-N	22772/11321-N/M
<b>13.</b>	Madiha Ibrahim	M.D, M.Phil (Haematology)	Senior Demonstrator	73999-P	701413/73999-P/M
<b>14.</b>	Misbah Sadaqat	M.B.,B.S.	Demonstrator	115188-P	167525/115188-P/M

<b>15.</b>	Muhammad Rashid	M.B.,B.S.	Demonstrator	116270-P	379541/116270-P/M
<b>16.</b>	Nimra Shakeel	MBBS	Demonstrator	761397-01-M	701457/761397-01-M/M
<b>17.</b>	Muhammad Shoaib Malik	MBBS	Demonstrator	102771-P	701460/102771-P/M
<b>18.</b>	Hafsa Pervaiz	MBBS	Demonstrator	783500-01-M	704140/783500-01-M/M
<b>19.</b>	Abeera Azmat	MBBS	Demonstrator	786346-01-M	710931/786346-01-M/M
<b>20.</b>	Amina Khalid	MBBS	Demonstrator	922633-01-M	712162/922633-01-M/M

ORGANOGRAM, PATHOLOGY DEPARTMENT, SMC NAROWAL



## ORGANOGRAM, PATHOLOGY DEPARTMENT, SMC NAROWAL



# **6) Course outline / Objectives**

## **COURSE OUTLINE OF 4<sup>TH</sup> YEAR MBBS**

### **1) DISEASES OF BLOOD VESSELS & HEART**

1. Differentiate among atherosclerosis, Monckeberg's sclerosis and arteriolosclerosis.
2. Describe atherosclerosis with respect to the following factors  
Etiology and pathogenesis, early lesion, Late and complicated lesion, Vessels affected and Complications
3. Classify hypertension. List the causes of secondary hypertension. Describe the vascular changes in hypertension.
4. Discuss the common pathogenic mechanisms of vasculitis.
5. Classify aneurysm according to the etiology.  
Describe atherosclerotic aneurysm with respect to Pathogenesis, Type of vessel involved, Morphological & clinical features.
6. Describe varicose veins with respect to Common sites, predisposing factors, Clinical features.
7. List the benign and malignant tumors of blood vessels.
8. Describe the pathogenesis of ischemic heart disease.
9. 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
10. List the causes of sudden cardiac death
11. Describe cor-pulmonale and list the predisposing disorders
12. Describe rheumatic fever with respect to Etiology, Pathogenesis, Morphological & clinical features
13. List the causes of myocarditis.
14. Describe morphological and clinical features of myocarditis
15. Describe the three major clinico-pathological groups of cardiomyopathy (dilated, hypertrophic and restrictive)
16. List the causes of pericarditis. Describe the clinical and morphological feature of pericarditis
17. List the primary & secondary cardiac tumors
18. Describe the main features of Fallot's tetralogy and coarctation of aorta

### **2) HAEMATOPOIETIC AND LYMPHOID SYSTEMS**

1. Outline the stages in the formation of red blood cell and white blood cells.
2. List the normal values of red cell count, hemoglobin level, packed cell volume, MCH, MCV, MCHC, WBC count and platelet count.
3. Classify anemia on the basis of mechanism of RBC production.
4. Describe the causes of iron deficiency.
5. Describe the morphological and clinical features of iron deficiency anemia.
6. List the types of megaloblastic anemia.
7. List the conditions which predispose to folate deficiency.
8. Describe vit. B12 deficiency with respect to the conditions which produce it, Blood picture and clinical features

9. Differentiate between anemia of chronic disease and nutritional deficiency anemia.
10. Describe hereditary spherocytosis with respect to incidence, Etiology, Pathogenesis, Morphological and clinical features
11. Discuss the pathogenesis of thalassemia.
12. Classify thalassemia on the basis of clinical and genetic features.
13. Differentiate between the blood picture and clinical feature of Beta-thalassemia minor and major.
14. Discuss the mechanism of hemolytic anemia due to glucose-6-phosphate dehydrogenase deficiency.
15. Classify immunohemolytic anemia.
16. Differentiate between warm and cold antibodies immunohemolytic anemia.
17. Describe aplastic anemia with respect to the Etiology and pathogenesis
18. Clinical features and Lab. Diagnosis
19. Describe the mechanisms which can cause neutropenia/ agranulocytosis.
20. Describe the causes of leukocytosis.
21. Describe the epidemiological, morphological and clinical features of infectious mononucleosis.
22. Differentiate between acute and chronic non-specific lymphadenitis.
23. Describe the different classifications (REAL and working formulations) of non-Hodgkin's lymphoma.
24. Describe Hodgkin's disease with respect to classification, clinical stages, etiology and pathogenesis
25. Classify leukemia
26. Discuss the prognostic factors of acute lymphoblastic and acute myeloblastic leukemia.
27. Describe the pathophysiology of chronic myeloid and chronic lymphocytic leukemia
28. Describe multiple myeloma with respect to Etiology, Pathogenesis, Morphology, Clinical features
29. Describe disseminated intravascular coagulation with respect to Etiology and pathogenesis Clinical features and laboratory diagnosis
30. List the causes of decreased production and decreased survival of platelets.
31. Describe the pathogenesis of idiopathic & thrombotic thrombocytopenic purpura
32. Indicate the value of following tests in the assessment of bleeding disorders
33. Bleeding time, Clotting time, Platelets count, Platelet function test, Partial thromboplastin time , Prothrombin time, Mixing test studies
34. Describe polycythemia with respect to Etiology Pathogenesis Clinical significance Lab. Diagnosis
35. Describe the ABO and Rhesus blood groups and outline the way in which a sample of blood is typed.
36. List the hazards of blood transfusion and how these can be prevented.

### 3) **DISEASES OF RESPIRATORY SYSTEM**

1. List micro-organisms causing upper respiratory tract infection.
2. Describe the etiology and clinical features of rhinitis and nasal polyps.
3. List malignant & benign tumors of nasopharynx and larynx. Discuss pleural effusion, hemothorax, hydrothorax, pleuritis, pneumothorax and chylothorax.
4. Discuss acute pharyngitis, acute bacterial epiglottitis and acute laryngitis.
5. Classification of atelectasis on the basis of underlying mechanism.

6. Differentiate between restrictive & obstructive lung disease on the basis of pulmonary function tests.
7. Describe the etiology pathogenesis, morphology & clinical features of asthma.
8. Describe various types of emphysema, its pathogenesis, morphology and clinical features.
9. Describe pathogenesis and clinical features of chronic bronchitis.
10. Describe the predisposing factors, pathogenesis, morphology & clinical features of bronchiectasis.
11. List the clinical conditions associated with restrictive lung diseases.
12. Describe the pathogenesis, morphology & clinical features of adult respiratory distress syndrome.
13. Describe the pathogenesis, morphology & clinical features of sarcoidosis and hypersensitivity pneumonitis.
14. Describe the pathogenesis, morphology and clinical features of idiopathic pulmonary fibrosis.
15. Describe clinical features of Good pasture's syndrome.
16. List the pathogenesis, morphology & clinical features of thromboembolism.
17. Describe the morphology & clinical features of pulmonary infarction.
18. List the causes of pulmonary hypertension and vascular sclerosis.
19. Describe the etiology, pathogenesis, morphology & clinical features of acute bacterial pneumonia.
20. List the micro-organisms causing atypical pneumonia.
21. Discuss the etiology, pathogenesis & clinical features of tuberculosis of the lung.
22. List the Fungi (candida, pneumocystis carinii) causing lung infections.
23. Describe the classification, etiology, pathogenesis and clinical features of bronchogenic carcinoma.
24. Describe etiology & pathogenesis of mesothelioma.
25. Describe pneumoconiosis with respect to etiology, pathogenesis and clinical features.

#### **4) DISEASES OF ORAL CAVITY AND GASTROINTESTINAL TRACT**

##### **4.1 Oral cavity**

1. Define the term leukoplakia.
2. List the possible predisposing factors (pipe smoking, ill-fitting denture, alcohol abuse, irritant foods) of leukoplakia.
3. Discuss the risk factors of oral cancer.
4. Describe the clinical and morphological feature of oral cancer.
5. List the benign and malignant tumors of salivary glands.
6. Describe the clinical and morphological features of pleomorphic adenoma.

##### **4.2 Esophagus**

1. Describe the predisposing factors of esophagitis.
2. Carcinoma of the esophagus.

##### **4.3 Stomach**

1. List the predisposing factors associated with acute gastritis.
2. Describe the pathogenesis and clinical features of acute gastritis.
3. Describe the pathogenesis, morphological and clinical features of chronic gastritis.
4. 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

##### **4.4 Intestine**

1. Describe the clinical and morphological features of Hirschsprung's disease.



2. Describe the pathogenesis, morphological and clinical features of Celiac sprue  
Tropical sprue
3. Describe the predisposing conditions for ischemic bowel disease.
4. Describe the clinical and morphological features of ischemic bowel disease.
5. Differentiate between Crohn's disease and ulcerative colitis.
6. List the major causes of intestinal obstruction.
7. Describe the clinico-pathological features of following diseases of intestine  
Amebiasis Tuberculosis Typhoid
8. List the non-neoplastic polyps of intestine.
9. Classify adenomas on the basis of epithelial architecture.
10. Describe the clinical and morphological features of adenomas.
11. Discuss the pathogenesis of colorectal carcinoma.
12. Describe the morphological and clinical features of colorectal carcinoma.
13. Describe the Aster-Collar classifications of carcinoma of the colon and rectum.
14. Describe carcinoid tumor with respect to the Peak incidence most prevalent sites in  
the gut Morphological features.
15. Describe the clinical features of carcinoid syndrome.
16. Describe the etiology, pathogenesis, morphological and clinical features of acute  
appendicitis. List the tumors of appendix.

## **5. DISEASES OF LIVER & BILIARY TRACT**

### **5.1 Liver**

1. Describe the pathway of bilirubin metabolism and its elimination from the body.
2. Describe the types of jaundice with respect to the following: Causes Clinical  
features Lab diagnosis
3. Differentiate between intrahepatic and extrahepatic biliary obstruction.
4. List the causes of hepatic failure.
5. Describe the morphological and clinical features of hepatic failure.
6. Describe the important complication of liver failure (hepatic encephalopathy,  
hepatorenal syndrome).
7. List the common causes of cirrhosis (viral hepatitis, cryptogenic, alcohol, biliary  
disease, genetic hemochromatosis, Wilson's disease, alpha-1 anti-trypsin deficiency).
8. Discuss the pathogenesis of cirrhosis.
9. Describe the complications of cirrhosis (progressive liver failure, portal  
hypertension, hepatocellular carcinoma).
10. 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.
11. Define carrier state and differentiate between acute and chronic hepatitis.
12. List the common causes of liver abscess (amebic, echinococcal, bacterial, and  
fungal).
13. Describe clinical and morphological features of liver abscess.
14. List the drugs and toxins which cause hepatic injury along with their specific  
effects.
15. Discuss the pathogenesis of alcohol liver disease. Describe the morphological  
and clinical features of alcoholic hepatitis and cirrhosis.
16. List the causes of secondary hemochromatosis.
17. Describe the pathogenesis, morphological and clinical features of  
hemochromatosis.
18. Discuss the clinico-morphological features of Wilson's disease.

19. Describe the clinico-morphological features of alpha-1 anti-trypsin deficiency.
20. List the causes of neonatal hepatitis.
21. Differentiate between primary and secondary biliary cirrhosis.
22. Discuss the epidemiology, pathogenesis, morphological and clinical features of hepatocellular carcinoma.

#### **Biliary tract**

23. Describe the pathogenesis and risk factors of cholelithiasis.
24. Describe the morphological and clinical features of acute and chronic cholecystitis.
25. Describe clinical and morphological features of gall bladder cancer.

#### **Pancreas**

26. Describe acute pancreatitis with respect to
27. Etiology and pathogenesis
28. Clinical and morphological features.
29. Describe the clinical and morphological features of chronic pancreatitis.
30. Describe the clinical and morphological features of carcinoma of pancreas.

### **6. THE URINARY SYSTEM**

1. Define the terms: Azotemia Uremia Acute renal failure Chronic renal failure
2. Discuss the types, genesis, basis, clinical features and complications of polycystic kidney disease.
3. Describe different types and pathogenesis mechanisms of glomerulonephritis.
4. Differentiate between nephrotic and nephritic syndrome. List the diseases included in these categories, their etiology and pathogenesis mechanisms (membranous, minimal change, membranoproliferative & acute post streptococcal glomerulonephritis).
5. Discuss the etiology, clinical course, pathogenesis and complications of acute pyelonephritis.
6. Discuss pathogenesis mechanism, morphology clinical features and complications of chronic pyelonephritis.
7. Define acute tubular necrosis, its pathogenesis and clinical course.
8. Differentiate between benign and malignant nephrosclerosis. (on the basis of clinical date). Discuss the pathogenic mechanism, morphology and clinical course (Gross & microscope picture).
9. Discuss the pathogenesis, clinical features and lab diagnosis of nephrolithiasis. List the various types of renal stones.
10. Define hydronephrosis, what are its causes, clinical features and complications.
11. Discuss the epidemiology, morphology and clinical features (paraneoplastic syndrome) of renal cell carcinoma.
12. Describe the clinical features, morphology and prognosis of Wilm's tumor.
13. Describe the etiology, morphology & clinical features of cystitis.

Describe the clinical features, etiology and morphology of transitional cell carcinoma of the urinary bladder. **7. MALE GENITAL SYSTEM**

1. Discuss the following congenital conditions Hypospadias Undescended testis
2. Describe the etiology, route of infection, pathogenesis and methods of diagnosing urethritis. Gonococcal Non gonococcal
3. Discuss the etiology, pathogenesis and natural history of Prostatitis Prostatic hyperplasia Prostatic carcinoma

4. Discuss the causes, pathogenesis and clinical features of scrotal swelling  
Testicular adnexa Varicocele Hydrocele Spermatocele Testis and epididymis  
Inflammation (Orchitis) Epididymitis Tumor
5. Discuss the causes, pathogenesis and relevant investigations of male infertility.
6. Classify the tumors of the male genital tract. Prostate Testis

## **8. FEMALE GENITAL SYSTEM**

1. List the causes, routes of infection & methods of diagnosis of sexually transmitted diseases. List the micro-organisms involved, route of infection, pathogenesis and methods of diagnosing the following:
2. Gonorrhea, syphilis, chlamydia, HPV, herpes simplex and trichomonas vaginalis.
3. Classify the neoplasms of cervix with special reference to cervical intraepithelial neoplasia.
4. Describe the clinical features and pathogenesis of adenomyosis and endometriosis.
5. Describe the causes, pathogenesis and clinical features of dysfunctional uterine bleeding with special reference to endometrial hyperplasia, endometrial polyp and carcinoma.
6. Classify tumors of the uterus.
7. Classify tumors of the ovary.
8. Describe the etiology, clinical features and pathogenesis of ectopic pregnancy and toxemia of pregnancy.
9. Classify gestational trophoblastic tumors with special reference to their clinical features.

## **9. BREAST**

1. List the causes of lump in the breast and discuss etiology, pathogenesis, morphology, clinical features and natural history of
2. Mastitis
3. Fibrocystic disease of the breast
4. Benign tumors of the breast (Fibroadenoma and Phyllodes tumor)
5. Carcinomas of the breast (Ductal and Lobular)
6. List the causes of nipple discharge with special reference to intraductal papilloma.
7. Describe gynecomastia, and list its causes.

## **10. MUSCULOSKELETAL SYSTEM**

1. Describe the pathogenesis and clinical features of each of the following  
Achondroplasia. Osteogenesis imperfecta. Osteoporosis  
List the causes of osteoporosis.  
Describe the pathogenesis, morphological and clinical features of osteoporosis.
2. Osteomyelitis with respect to Common causative micro-organism  
(Staphylococcus aureus, Pseudomonas, Escherichia coli, group-B Streptococci, Salmonella, Mycobacterium tuberculosis).  
Common routes of spread  
(Hematogenous, direct extension from the focus of infection, traumatic implantation  
Complications.
3. Differentiate between acute and chronic osteomyelitis.
4. List the common sites involved in tuberculosis osteomyelitis (vertebral bodies, long bones).  
Describe the pathogenesis, morphological and clinical features of Paget's disease (osteitis deformans).

5. List the benign and malignant bone forming tumors. Osteogenic sarcoma  
List the common sites (lower end of femur, upper end of tibia, upper end of humerus).  
Describe the morphological and clinical features of osteogenic sarcoma.  
List the benign and malignant cartilaginous tumors.
6. Chondrosarcoma with respect to Peak incidence (sixth decade) Common sites of origin (shoulder, pelvis, proximal femur, and ribs) Morphological and clinical features.
7. Giant cell tumors of bone List the most frequent sites (distal femur, proximal tibia, proximal humerus and distal radius)  
Describe the clinical and morphological features of giant cell tumors of bone.
8. Ewing's sarcoma with respect to Peak incidence (second decade) Common sites of origin (femur, tibia, pelvis) Chromosomal abnormality t(11:22) (q24; q12).  
Morphological and clinical features.
9. Osteoarthritis Describe the pathogenesis, morphological and clinical features
10. Rheumatoid arthritis with respect to Pathogenesis Morphological and clinical features
11. Gout Classification. Describe the pathogenesis, morphological and clinical features of gout.
12. Duchenne muscular dystrophy Describe the pathogenesis, morphological and clinical features of Myotonic dystrophy
13. List congenital myopathies (central core disease, nemaline myopathy and centronuclear myopathy).
14. List inflammatory myopathies (dermatomyositis, polymyositis and inclusion body myositis).
15. Describe the clinico-pathological features of myasthenia gravis.
16. Differentiate between lipoma and liposarcoma.
17. Describe rhabdomyosarcoma with respect to Peak incidence (1<sup>st</sup> decade of life).  
Histological variants (embryonal, alveolar, sarcoma botryoides, pleomorphic). Frequent sites (head & neck region, genitourinary, retroperitoneum).

## 11. ENDOCRINE SYSTEM

### Pituitary

1. List the causes of hypopituitarism.
2. Describe the morphology and clinical features of pituitary adenomas.
3. Describe the clinical features of acromegaly and gigantism.
4. List the causes of hypopituitarism.
5. Describe the etiology, pathogenesis and clinical features of Sheehan's syndrome
6. Dwarfism

Describe the etiology factors, clinical features, and pathogenesis and lab findings in inappropriate secretion of ADH. **Adrenal Cortex and Medulla**

7. List the causes of adrenal cortical hyper function.
8. Describe the etiology, pathogenesis clinical features and lab diagnosis of Conn's syndrome Adrenogenital syndrome. Cushing syndrome
9. List the causes of hypofunction of adrenal cortex.
10. Describe the etiology, pathogenesis, and clinical features of Addison's disease.
11. List the tumors of adrenal medulla and cortex.
12. Describe the clinical features and diagnosis of pheochromocytoma.

### Thyroid

List the etiology and clinical features of hyperthyroidism.

13. List the etiology and clinical features of hypothyroidism including Cretinism
14. Myxedema.
15. Discuss the investigation/lab tests for diagnosis of thyroid dysfunction.
16. Define goiter and list its types (diffuse and multinodular).
17. Describe the etiology, pathogenesis and clinical features of diffuse and multinodular goiter.
18. List the causes of solitary thyroid nodule and discuss the diagnostic approach.
19. 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).
20. Classify the etiology, pathogenesis, morphology and clinical features of Follicular adenoma papillary carcinoma Follicular carcinoma medullary carcinoma.
21. List the types of MEN syndromes.

### **Parathyroid**

22. List the etiologic factors and clinical features of hyperparathyroidism.
23. List the etiologic factors and clinical features of hypoparathyroidism
24. Differentiate between primary, secondary and tertiary hyperparathyroidism.
25. Discuss calcium homeostasis and causes of hyper and hypocalcemia.

## **12. SKIN**

1. Define the following macroscopic and microscope terms:
2. Macule, papule, nodule, plaque, vesicle, bulla, blister, pustule, scale, lichenification, excoriation, hyperkeratosis, parakeratosis, acanthosis, dyskeratosis, acantholysis, papillomatosis, lentiginous spongiosis.
3. Describe the morphological and clinical features of urticaria.
4. Classify eczematous dermatitis.
5. Describe the etiology and pathogenesis of Contact dermatitis Atopic dermatitis Drug related eczematous dermatitis Photoeczematous eruptions Primary irritant dermatitis
6. Describe the morphological and clinical features of acute eczematous dermatitis.
7. List the conditions which are associated with erythema multiforme.
8. Describe the clinical features of erythema multiforme.
9. Describe the pathogenesis, morphological and clinical features of psoriasis.
10. Describe the variants of pemphigus with respect to frequent site of involvement and clinical features.
11. Discuss the pathogenesis of pemphigus.
12. Describe the clinical and morphological features of bullous pemphigoid.
13. List the pre-malignant epithelial lesions.
14. List the types of warts and their most frequent locations.
15. List the predisposing factors of squamous cell carcinoma of skin.
16. Describe the clinical and morphological features of basal cell carcinoma.
17. List the types of Nevocellular Nevi (congenital nevus, blue nevus, spitz's nevus, halo nevus, dysplastic nevus) along with their clinical significance.
18. Describe the clinical and morphological features of dysplastic nevi.
19. Describe malignant melanoma with respect to frequent site of origin, clinical and morphological features.

## **13. NERVOUS SYSTEM**

1. Describe clinico-pathological features of hydrocephalus.

2. Describe the categories of cerebral edema (vasogenic & cytotoxic).
3. List the types of herniation of brain along with clinical significance.
4. Describe the clinical and morphological features of intra-cranial hemorrhage.
5. Differentiate between acute purulent meningitis and acute lymphocytic meningitis.
6. List the etiologic agents of chronic meningitis (mycobacterium tuberculosis, Cryptococcus neoformans, Treponema pallidum).
7. Describe clinical and morphological features of chronic meningitis.
8. List the route of infecting agents causing brain abscess.
9. Describe the clinical and morphological features of brain abscess.
10. Describe the clinical and morphological features of tuberculosis meningitis.
11. List the causative organisms of viral encephalitis (herpes simplex virus, cytomegalovirus, HIV, JC virus, arbovirus).
12. Describe clinico-pathological features of Guillain Barre Syndrome.
13. List the infectious agents associated with polyneuropathies (leprosy, C. diphtheria, Varicella-zoster virus).
14. List the organic and inorganic compounds which can produce toxic neuropathy (organophosphorus esters, vincristine, acrylamide, hexane, ethanol, arsenic and lead).
15. List the important types of intracranial tumors (astrocytoma, oligodendrogliomas, ependymoma, medulloblastoma and meningioma) along with clinical significance of glial tumors.
16. List the frequent metastatic tumors to the brain (carcinoma of the lung, breast, malignant melanoma, leukemia and lymphoma).
17. List common primary peripheral nerve sheath neoplasms along with their clinical significance.

## **14. CHEMICAL PATHOLOGY**

1. Introduction to chemical pathology, reference/ranges conventional and SI units.
2. Renal functions.
3. Causes of proteinuria and its lab diagnosis.
4. Lab diagnosis of acid base disorders.
5. Lab diagnosis of diabetes mellitus.
6. Liver function tests.
7. Lab diagnosis of hyperlipidemia and its clinical interpretation.
8. Role of enzymes in diagnosis of pancreatitis.
9. Lab diagnosis of inborn errors of metabolism.
10. Lab diagnosis/investigations of endocrinedisorders:-
  - 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

# **7) Modes of Information Transfer**



### **TEACHING METHODOLOGY:**

1. Lectures
2. Practicals / skill lab.
3. Tutorials / Case Presentation
4. SDL / Small group discussions
5. Assignments
6. Museum Specimen
7. OSPE
8. MCQ & SEQ test
9. Viva
10. Test and Test result discussion

### **Lecture:**

Lectures alone are generally not adequate as a method of training, therefore, every effort shall be made to encourage the use of active learning methods. Students will be encouraged to learn in small groups through peer interactions and shall be taught in a setting of clinical relevance and hands on experience so that they assimilate and make the knowledge a part of their own working skill.

### **PRACTICAL / Skill Lab:**

Class is divided into 3 batches. Each batch will be coming to Pathology Department once a week for practical on Monday, Tuesday and Wednesday respectively. One week is allocated for histopathology and one week for Microbiology practical on alternate basis.

### **SDL / Assignment / Small group discussion:**

Assignments are given to the class. It is displayed on class notice board of the department. That notice also sent to CR and GR in addition to class WhatsApp group for the subject. One week time is given to prepare the assignment and submission date of the assignment is after one week.

Class is divided into small groups with a vocal person of that group. One topic is allotted to each group. Students are given time to prepare the topics and then every group representative presents his topic and every student of that group is involved in the discussion.

Above activities are performed once a week on Monday.

### **Tutorial: PBL / Monthly test / Test Discussion:**

Friday Tutorial time reserved for Case presentation, class tests and result discussion, OSPE and viva.

**MUSEUM:**

Visit and identification of organ and lesion with group discussion.

**8) Lecture/ Practical  
& Tutorial /  
Demonstration  
Teaching Details /  
Timetable**

# **Pathology department - Structured allocation of faculty to cover the student schedule 4<sup>th</sup> year MBBS**

## **LECTURES**

- Monday (10:00 – 10:45)
- Tuesday (09:15 – 10:00)
- Thursday (08:30 - 09:15)
- Friday (08:30 - 09:15)

➤ **Lectures are conducted by Professors / Associate Professor / Assistant Professor according to Syllabus and Topic**

## **Practicals**

- Time 02:00 – 03:00 (Monday & Wednesday)

➤ **Practicals are conducted by senior demonstrators**

## **Tutorial:**

- Friday (10:00 – 10:45)

➤ **Conducted by Professor / Associate Professor**

## **SDL / Assignment:**

- Monday (03:00 – 03:30)
- **Facilitated by Professor**

**Pathology Lecture Schedule of 4<sup>th</sup> Year MBBS (2023 - 2024)**  
**Special Pathology**  
**Date wise Lecture Schedule**

<b>Date</b>	<b>Day</b>	<b>Topic</b>	<b>Teacher</b>
14-03-2024	Thursday	Congenital Anomalies of GIT. Esophagitis, Barrett Esophagus	Prof. Dr. Khalida Ahtasham
15-03-2024	Friday	Tumors of The Esophagus, Acute Gastritis	Prof. Dr. Khalida Ahtasham
18-03-2024	Monday	Respiratory system, Intro. URT information pathogens and Morphology Both in Acute and chronic Lesions	Prof. Dr. M. Tariq Ch.
19-03-2024	Tuesday	Introduction to Hematology	Prof. Dr. M. Tariq Ch.
21-03-2024	Thursday	Acute Gastric Ulceration, Chronic Gastritis	Prof. Dr. Khalida Ahtasham
22-03-2024	Friday	Autoimmune Gastritis Peptic Ulcer	Prof. Dr. Khalida Ahtasham
25-03-2024	Monday	Iron Deficiency Anemia	Prof. Dr. M. Tariq Ch.
26-03-2024	Tuesday	Nutritional Deficiency Anemia	Prof. Dr. M. Tariq Ch.
28-03-2024	Thursday	Complications of Chronic Gastritis	Prof. Dr. Khalida Ahtasham
29-03-2024	Friday	Gastric Polyps and Tumors	Prof. Dr. Khalida Ahtasham
01-04-2024	Monday	Nutritional Anemias, Megaloblastic Anemia	Prof. Dr. M. Tariq Ch.
02-04-2024	Tuesday	Hereditary Spherocytosis	Prof. Dr. M. Tariq Ch.
15-04-2024	Monday	Aplastic Anemia	Prof. Dr. M. Tariq Ch.
16-04-2024	Tuesday	Hemolytic Anemia	Prof. Dr. M. Tariq Ch.
18-04-2024	Thursday	Gastric Adenocarcinoma	Prof. Dr. Khalida Ahtasham
19-04-2024	Friday	Carcinoid Tumor, GIST, Lymphoma	Prof. Dr. Khalida Ahtasham
22-04-2024	Monday	Thalassemia	Prof. Dr. M. Tariq Ch.
23-04-2024	Tuesday	Thalassemia, Immunohemolytic Anemia	Prof. Dr. M. Tariq Ch.
25-04-2024	Thursday	Intestinal Obstruction, Volvulus, Intussusception, Adhesions, Hernia, Ischamic Bowel Disease	Prof. Dr. Khalida Ahtasham
26-04-2024	Friday	Malabsorption and Diarrhea, Celiac Disease\	Prof. Dr. Khalida Ahtasham
29-04-2024	Monday	WBC, Disorders infectious Mononucleosis	Prof. Dr. M. Tariq Ch.
30-04-2024	Tuesday	Acute sub-acute Lymphadenitis	Prof. Dr. M. Tariq Ch.
02-05-2024	Thursday	Infectious Enterocolitis	Prof. Dr. Khalida Ahtasham
03-05-2024	Friday	Irritable bowel syndrome, inflammatory bowel disease.	Prof. Dr. Khalida Ahtasham
06-05-2024	Monday	Non Hodgkin lymphoma	Prof. Dr. M. Tariq Ch.

07-05-2024	Tuesday	Hodgkin's lymphoma	Prof. Dr. M. Tariq Ch.
09-05-2024	Thursday	Polyps, Adenocarcinoma colon	Prof. Dr. Khalida Ahtasham
10-05-2024	Friday	Lesions and tumors of oral cavity	Prof. Dr. Khalida Ahtasham
13-05-2024	Monday	Acute leukemias AML, ALL	Prof. Dr. M. Tariq Ch.
14-05-2024	Tuesday	Chronic leukemias CML, CLL	Prof. Dr. M. Tariq Ch.
16-05-2024	Thursday	Acute appendicitis, tumors of appendix	Prof. Dr. Khalida Ahtasham
17-05-2024	Friday	Lesions and tumors of salivary glands	Prof. Dr. Khalida Ahtasham
20-05-2024	Monday	Multiple myeloma	Prof. Dr. M. Tariq Ch.
21-05-2024	Tuesday	Disseminated intravascular coagulation DIC	Prof. Dr. M. Tariq Ch.
23-05-2024	Thursday	Jaundice Bilirubinaemias	Prof. Dr. Khalida Ahtasham
24-05-2024	Friday	Liver failure	Prof. Dr. Khalida Ahtasham
		Respiratory System	Dr. Ikram Ul Haq
27-05-2024	Monday	Investigations of Bleeding Diathesis	Prof. Dr. M. Tariq Ch.
28-05-2024	Tuesday	Polycythemia	Prof. Dr. M. Tariq Ch.
30-05-2024	Thursday	Viral Hepatitis, Hepatitis A and B	Prof. Dr. Khalida Ahtasham
31-05-2024	Friday	Hepatitis C, D and E	Prof. Dr. Khalida Ahtasham
		Pathogenesis, Morphology and Complication of Pul Pneumonia	Dr. Ikram Ul Haq
22-07-2024	Monday	Thrombocytopenias ITP, TTP, HUS	Prof. Dr. M. Tariq Ch.
23-07-2024	Tuesday	Blood Banking, Blood Grouping, Cross Matching, Transfusion Hazards	Prof. Dr. M. Tariq Ch.
25-07-2024	Thursday	Autoimmune hepatitis. Alcoholic liver disease	Prof. Dr. Khalida Ahtasham
26-07-2024	Friday	Nonalcoholic steatohepatitis	Prof. Dr. Khalida Ahtasham
		Respiratory System COPD - I	Dr. Ikram Ul Haq
29-07-2024	Monday	Interior Pituitary Dysfunctions	Prof. Dr. Ahsan Abbas Kazmi
30-07-2024	Tuesday	Congenital Anomalies	Dr. Ali Raza
01-08-2024	Thursday	Hemochromatosis	Prof. Dr. Khalida Ahtasham
02-08-2024	Friday	Alpha 1 antitrypsin deficiency, Wilson disease	Prof. Dr. Khalida Ahtasham
		Pathogenesis & Morphology Emphysema	Dr. Ikram Ul Haq
05-08-2024	Monday	Pathology of Thyroid Gland	Prof. Dr. Ahsan Abbas Kazmi
06-08-2024	Tuesday	BPH and Prostatic Cancer	Dr. Ali Raza
08-08-2024	Thursday	Neonatal Cholestasis, Autoimmune Cholangiopathies	Prof. Dr. Khalida Ahtasham

09-08-2024	Friday	Nodules And Tumors Of Liver	Prof. Dr. Khalida Ahtasham
12-08-2024	Monday	Pituitary of Thyroid Gland	Prof. Dr. Ahsan Abbas Kazmi
13-08-2024	Tuesday	Benign Scrotal Masses	Dr. Ali Raza
15-08-2024	Thursday	Hepatocellular Carcinoma	Prof. Dr. Khalida Ahtasham
16-08-2024	Friday	Lesions of Gall Bladder	Prof. Dr. Khalida Ahtasham
		COPD Chronic Bronchitis Pathogenesis Morphology and Clinical Presentation	Dr. Ikram Ul Haq
19-08-2024	Monday	Pathology of Parathyroid gland Pathology of adrenal gland	Prof. Dr. Ahsan Abbas Kazmi
20-08-2024	Tuesday	Testicular Tumors	Dr. Ali Raza
22-08-2024	Thursday	Congenital anomalies of pancreas, acute pancreatitis	Prof. Dr. Khalida Ahtasham
23-08-2024	Friday	Chronic pancreatitis, carcinoma pancreas	Prof. Dr. Khalida Ahtasham
		COPD Chronic Bronchitis Pathogenesis Morphology and Diagnosis.	Dr. Ikram Ul Haq
26-08-2024	Monday	Pathology of Adrenal Gland	Prof. Dr. Ahsan Abbas Kazmi
27-08-2024	Tuesday	Penile Tumors, Inflammation & Infections of Male Genital Tract	Dr. Ali Raza
29-08-2024	Thursday	Clinical Presentation of Breast Disease, Mastitis, Duct Ectasia, Fat Necrosis, Benign Epithelial Lesions, Gynecomastia	Prof. Dr. Khalida Ahtasham
30-08-2024	Friday	Carcinoma Breast Risk Factors, Etiology and Pathogenesis, Molecular Mechanism of Carcinogenesis	Prof. Dr. Khalida Ahtasham
		Respiratory System – Occupational Lung Diseases	Dr. Ikram Ul Haq
02-09-2024	Monday	Hypoaldosteronism	Prof. Dr. Ahsan Abbas Kazmi
03-09-2024	Tuesday	Arteriosclerosis, Types and Atherosclerosis	Prof. Dr. M. Tariq Ch.
04-09-2024	Wednesday	Hematopoiesis, CBC RBC Indices and Classification of Anemia	Dr. Ali Raza
05-09-2024	Thursday	Morphology and prognostic factors of carcinoma breast	Prof. Dr. Khalida Ahtasham
06-09-2024	Friday	Male breast cancer, stromal tumors. Fibroadenoma, phyllodes tumor	Prof. Dr. Khalida Ahtasham
		Occupational Lung Disease	Dr. Ikram Ul Haq
09-09-2024	Monday	Pathology of Gonadal hormones	Prof. Dr. Ahsan Abbas Kazmi
10-09-2024	Tuesday	Arteriosclerosis (Types other than atherosclerosis), and Common pathogenetic mechanisms of vasculitis	Prof. Dr. M. Tariq Ch.
11-09-2024	Wednesday	Iron Deficiency Anemia, Megaloblastic Anemia	Dr. Ali Raza
12-09-2024	Thursday	Cerebral edema, hydrocephalus, raised intracranial pressure and herniation, skull fracture, traumatic vascular injury	Prof. Dr. Khalida Ahtasham
13-09-2024	Friday	Cerebrovascular disease, meningitis, brain	Prof. Dr. Khalida Ahtasham

		abscess	
		Pathogenesis and mechanism of neoplasia	Dr. Ikram Ul Haq
16-09-2024	Monday	Musculoskeletal system	Dr. Ikram Ul Haq
18-09-2024	Wednesday	Hemolytic anemias	Dr. Ali Raza
19-09-2024	Thursday	Astrocytoma, oligodendroglioma, ependymoma	Prof. Dr. Khalida Ahtasham
20-09-2024	Friday	Medulloblastoma, meningioma, Alzheimer's disease	Prof. Dr. Khalida Ahtasham
		Fertility profile interpretation	Prof. Dr. Ahsan Abbas Kazmi
30-09-2024	Monday	Epidemiology, diagnosis and etiology of Diabetes mellitus	Prof. Dr. Ahsan Abbas Kazmi
01-10-2024	Tuesday	Hypertension	Prof. Dr. M. Tariq Ch.
02-10-2024	Wednesday	Immune & Non-Immune Hemolytic Anemias	Dr. Ali Raza
03-10-2024	Thursday	Pathogenesis of glomerular injury. Nephritic syndrome. Acute proliferative glomerulonephritis	Prof. Dr. Khalida Ahtasham
04-10-2024	Friday	Rapidly progressive glomerulonephritis	Prof. Dr. Khalida Ahtasham
		Inflammatory conditions of bone	Dr. Ikram Ul Haq
07-10-2024	Monday	Etiology of Diabetes mellitus	Prof. Dr. Ahsan Abbas Kazmi
08-10-2024	Tuesday	Aneurysm, various types and Pathophysiology	Prof. Dr. M. Tariq Ch.
09-10-2024	Wednesday	Acute and Chronic Leukemias	Dr. Ali Raza
10-10-2024	Thursday	Pathogenesis of glomerular injury. Nephritic syndrome. Acute proliferative glomerulonephritis	Prof. Dr. Khalida Ahtasham
11-10-2024	Friday	Rapidly progressive glomerulonephritis	Prof. Dr. Khalida Ahtasham
		Degenerative diseases of joint	Dr. Ikram Ul Haq
14-10-2024	Monday	Etiology pathogenesis & clinical manifestation of osteomyelitis	Dr. Ikram Ul Haq
15-10-2024	Tuesday	Ischemic heart disease	Prof. Dr. M. Tariq Ch.
16-10-2024	Wednesday	Acute and Chronic Leukemias	Dr. Ali Raza
21-10-2024	Monday	Pathogenesis of Diabetes Mellitus	Prof. Dr. Ahsan Abbas Kazmi
22-10-2024	Tuesday	SCD, Corpumonale and Rheumatic Endocarditis	Prof. Dr. M. Tariq Ch.
23-10-2024	Wednesday	Hodgkin's & Non-Hodgkin's Lymphoma	Dr. Ali Raza
24-10-2024	Thursday	Nephrotic syndrome. Membranous nephropathy. Minimal change disease	Prof. Dr. Khalida Ahtasham
25-10-2024	Friday	FSGS, membranoproliferative glomerulonephritis	Prof. Dr. Khalida Ahtasham
		Classification, pathogenesis and morphology of bone tumors	Dr. Ikram Ul Haq



28-10-2024	Monday	Complications of Diabetes mellitus	Prof. Dr. Ahsan Abbas Kazmi
29-10-2024	Tuesday	Bacterial endocarditis, Myocarditis	Prof. Dr. M. Tariq Ch.
30-10-2024	Wednesday	Aplastic Anemia & Multiple Myeloma	Dr. Ali Raza
31-10-2024	Thursday	Tumors of kidney, RCC	Prof. Dr. Khalida Ahtasham
01-11-2024	Friday	Cystitis, tumors of urinary bladder, TCC	Prof. Dr. Khalida Ahtasham
		Female genital system. Tumors	Dr. Ikram Ul Haq
04-11-2024	Monday	Chronic complications of Diabetes mellitus	Prof. Dr. Ahsan Abbas Kazmi
05-11-2024	Tuesday	Cardiomyopathies and other disorders	Prof. Dr. M. Tariq Ch.
06-11-2024	Wednesday	Multiple Myeloma & Polycythemia	Dr. Ali Raza
07-11-2024	Thursday	Tubulointerstitial nephritis, acute and chronic pyelonephritis	Prof. Dr. Khalida Ahtasham
08-11-2024	Friday	Vascular disease of kidney, nephrosclerosis	Prof. Dr. Khalida Ahtasham
		Valvular lesion and CIN with its grading	Dr. Ikram Ul Haq
11-11-2024	Monday	Tumors of Thyroid gland	Prof. Dr. Ahsan Abbas Kazmi
12-11-2024	Tuesday	Fallot's tetralogy and Coarctation of Aorta	Prof. Dr. M. Tariq Ch.
13-11-2024	Wednesday	Thrombocytopenia, ITP, TTP, HUS	Dr. Ali Raza
14-11-2024	Thursday	Urinary tract obstruction, hydronephrosis, renal stones	Prof. Dr. Khalida Ahtasham
15-11-2024	Friday	PKD, renal function test	Prof. Dr. Khalida Ahtasham
		Classification and pathogenesis of ovarian cancer	Dr. Ikram Ul Haq
25-11-2024	Monday	Cerebral Meningitis	Dr. Ikram Ul Haq
26-11-2024	Tuesday	Blood vessels & heart	Prof. Dr. M. Tariq Ch.
27-11-2024	Wednesday	Blood groups & hazards of blood transfusion	Dr. Ali Raza

**Pathology Practical Class of 4<sup>th</sup> Year MBBS (2023 - 2024)**  
**Special Pathology**

<b>Date</b>	<b>Day</b>	<b>Topic</b>	<b>Teacher</b>	<b>Technician</b>	<b>DEO</b>
13-03-2024	Wednesday	Introduction	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
14-03-2024	Thursday				
18-03-2024	Monday	Introduction	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
19-03-2024	Tuesday				
20-03-2024	Wednesday	Introduction	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
21-03-2024	Thursday				
25-03-2024	Monday	Carcinoma Of Stomach	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
26-03-2024	Tuesday				
27-03-2024	Wednesday	Iron Deficiency anemia	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
28-03-2024	Thursday				
01-04-2024	Monday	Liver Cirrhosis	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
02-04-2024	Tuesday				
15-04-2024	Monday	Hepatocellular carcinoma	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
16-04-2024	Tuesday				
17-04-2024	Wednesday	Adenocarcinoma of colon	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
18-04-2024	Thursday				
22-04-2024	Monday	Acute Appendicitis	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
23-04-2024	Tuesday				
24-04-2024	Wednesday	Chronic Cholecystitis	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
25-04-2024	Thursday				
29-04-2024	Monday	Chronic gastritis Helicobacter infection	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
30-04-2024	Tuesday				
02-05-2024	Thursday	Chronic Cholecystitis	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
06-05-2024	Monday	Fatty Liver	Dr. Saeeda Nabat Ul Hassan	Sajjad Ahmed Hashmi	Ahtasham Zahid
07-05-2024	Tuesday				
08-05-2024	Wednesday	ALL, CLL, AML,	Dr. Iqra Saleem	Sajjad Ahmed	Ahtasham

09-05-2024	Thursday	CML		Hashmi	Zahid
13-05-2024	Monday	Revision	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
14-05-2024	Tuesday				
15-05-2024	Wednesday	Revision	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
16-05-2024	Thursday				
20-05-2024	Monday	Chronic Inflammation	Dr. Bushra Shabbir	Sajjad Ahmed Hashmi	Ahtasham Zahid
21-05-2024	Tuesday		Dr. Iqra Saleem		
22-05-2024	Wednesday	Biliary Calculi	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
23-05-2024	Thursday				
27-05-2024	Monday	Collection of blood sample and blood film preparation	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
29-05-2024	Wednesday	Hemoglobin estimation	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
30-05-2024	Thursday				
22-07-2024	Monday	Chronic Gastritis	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
23-07-2024	Tuesday				
24-07-2024	Wednesday	Helicobacter Pylori	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
25-07-2024	Thursday				
29-07-2024	Monday	Atherosclerosis	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
30-07-2024	Tuesday				
31-07-2024	Wednesday	Multinodular Goiter	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
01-08-2024	Thursday				
05-08-2024	Monday	Revision	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
06-08-2024	Tuesday				
07-08-2024	Wednesday	Benign Prostatic Hyperplasia	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
08-08-2024	Thursday				

12-08-2024	Monday	Emphysema	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
13-08-2024	Tuesday				
15-08-2024	Thursday	Revision	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
19-08-2024	Monday	Anthracosis	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
20-08-2024	Tuesday				
21-08-2024	Wednesday	Pneumonia	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
22-08-2024	Thursday		Dr. Bushra Shabbir		
26-08-2024	Monday	Pulmonary TB	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
27-08-2024	Tuesday				
28-08-2024	Wednesday	Small Cell Carcinoma of Lung	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
29-08-2024	Thursday				
02-09-2024	Monday	Adenocarcinoma of Lung	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
04-09-2024	Wednesday	Adenocarcinoma of Lung	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
05-09-2024	Thursday				
16-09-2024	Monday	Thyroid Follicular Adenoma	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
18-09-2024	Wednesday	Papillary Carcinoma Of Thyroid	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
19-09-2024	Thursday				
30-09-2024	Monday	Revision	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
02-10-2024	Wednesday	Fibroadenoma	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
03-10-2024	Thursday				
07-10-2024	Monday	Cervical carcinoma	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
08-10-2024	Tuesday				
09-10-2024	Wednesday	Squamous cell carcinoma of skin	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
10-10-2024	Thursday				
14-10-2024	Monday	Basal cell carcinoma	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
15-10-2024	Tuesday				
16-10-2024	Wednesday	Osteosarcoma	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
21-10-2024	Monday	Erythrocyte sedimentation rate	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
22-10-2024	Tuesday				
23-10-2024	Wednesday	Osteoblastoma , Osteoma	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
24-10-2024	Thursday				

28-10-2024	Monday	Renal cell carcinoma	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
29-10-2024	Tuesday				
30-10-2024	Wednesday	Endometrial hyperplasia	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
31-10-2024	Thursday				
04-11-2024	Monday	Endometrial hyperplasia	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
05-11-2024	Tuesday				
06-11-2024	Wednesday	Revision	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
07-11-2024	Thursday				
11-11-2024	Monday	Revision	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
12-11-2024	Tuesday				
13-11-2024	Wednesday	Copy Check	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
14-11-2024	Thursday				
25-11-2024	Monday	Copy Check	Dr. Iqra Saleem	Sajjad Ahmed Hashmi	Ahtasham Zahid
26-11-2024	Tuesday		Dr. Hafsa Pervaiz		
27-11-2024	Wednesday	Copy Check	Dr. Hafsa Pervaiz	Sajjad Ahmed Hashmi	Ahtasham Zahid

**Pathology Tutorial Class / Class Test of 4<sup>th</sup> Year MBBS (2023 - 2024)**  
**Special Pathology**  
**Tutorial Class**  
**(Flip Class / PBL / MCQ Discussion)**

<b>Week</b>	<b>Date</b>	<b>Day</b>	<b>Teacher</b>
<b>Week 1</b>	15-03-2024	Friday	Prof. Dr. Ahsan Abbas Kazmi
<b>Week 2</b>	22-03-2024	Friday	Dr. Ali Raza
<b>Week 3</b>	29-03-2024	Friday	Dr. Ali Raza
<b>Week 5</b>	19-04-2024	Friday	Dr. Ali Raza
<b>Week 6</b>	26-04-2024	Friday	Dr. Ali Raza
<b>Week 8</b>	10-05-2024	Friday	Dr. Ikram Ul Haq
<b>Week 9</b>	17-05-2024	Friday	Dr. Ikram Ul Haq

**Pathology SDL Session of 4<sup>th</sup> Year MBBS (2023 - 2024)**  
**Special Pathology**  
**SDL / Assignment / Group Discussion**

<b>Week</b>	<b>Date</b>	<b>Day</b>	<b>Teacher</b>
<b>Week 1</b>	13-03-2024	Wednesday	Prof. Dr. Razi Uddin Ahmed
	15-03-2024	Friday	Prof. Dr. Razi Uddin Ahmed
<b>Week 2</b>	18-03-2024	Monday	Prof. Dr. Razi Uddin Ahmed
	22-03-2024	Friday	Prof. Dr. Razi Uddin Ahmed
<b>Week 3</b>	25-03-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 4</b>	01-04-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 5</b>	15-04-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 6</b>	22-04-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 7</b>	29-04-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 8</b>	06-05-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 9</b>	13-05-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 10</b>	20-05-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 11</b>	27-05-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 13</b>	22-07-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 14</b>	29-07-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 15</b>	05-08-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 16</b>	12-08-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 17</b>	19-082024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 18</b>	26-08-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 19</b>	02-09-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 20</b>	09-09-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 21</b>	16-09-2024	Monday	Prof. Dr. Razi Uddin Ahmed

<b>Week 23</b>	30-09-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 24</b>	07-10-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 26</b>	21-10-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 27</b>	28-10-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 28</b>	04-11-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 29</b>	11-11-2024	Monday	Prof. Dr. Razi Uddin Ahmed
<b>Week 31</b>	25-11-2024	Monday	Prof. Dr. Razi Uddin Ahmed





## **SAHARA MEDICAL COLLEGE NAROWAL**

### **TIME TABLE — FOURTH YEAR M.B.B.S 2023 – 2024**

Day/Time	08:30 – 09:15	09:15 – 10:00	10:00 – 10:45	10:45 – 11:00	11:00 – 01:00	01:00 – 01:45	01:45 – 02:00	02:00 – 03:00	03:00 – 04:00
Monday	Lecture Community Medicine	Lecture <u>Gynae</u> & Obs.	Lecture Pathology	TRAVEL TIME	WARDS	Lecture Medicine	Prayer Time	PRACTICAL Pathology Batch -A Community Medicine Batch - B	ENT (Self- Study)
Tuesday	Lecture Pediatrics	Lecture Pathology	Lecture ENT			Lecture Community Medicine		PRACTICAL Pathology Batch -B Community Medicine Batch - A	Community Medicine (Self- Study)
Wednesday	Lecture Dermatology	Lecture ENT	Lecture EYE			Lecture <u>Gynae</u> & Obs.		PRACTICAL Pathology Batch -A Community Medicine Batch - B	Pathology (Self- Study)
Thursday	Lecture Pathology	Community Medicine	Lecture EYE			Lecture Surgery		PRACTICAL Pathology Batch -B Community Medicine Batch - A	EYE (Self- Study)
Friday	08:30 – 09:15	09:15 – 10:00	10:00 – 10:45	10:45 – 11:30	11:30 – 12:10	12:10: - 12:50		12:50 – 02:00	02:00 – 03:00
	Lecture Pathology	Lecture ENT	Tutorial Pathology	Lecture Community Medicine	Lecture Medicine & Allied (Cardiology)	Lecture Surgery & Allied (Orthopedic)		Prayer Time	Library



## **SAHARA MEDICAL COLLEGE NAROWAL**

### **TIME TABLE — FOURTH YEAR M.B.B.S 2023 – 2024**

Day/Time	08:30 – 09:15	09:15 – 10:00	10:00 – 10:45	10:45 – 11:00	11:00 – 01:00	01:00 – 01:45	01:45 – 02:00	02:00 – 03:00	03:00 – 04:00
Monday			Lecture Pathology	TRAVEL TIME	WARDS		Prayer Time	PRACTICAL Practical / skill Lab. / Museum Pathology	
Tuesday		Lecture Pathology (Topic Disseminated)						PRACTICAL Practical / skill Lab. / Museum Pathology	
Wednesday								PRACTICAL Practical / skill Lab. / Museum Pathology	Pathology (Self-Study / SGD)
Thursday	Lecture Pathology							PRACTICAL Practical / skill Lab. / Museum Pathology	
Friday	08:30 – 09:15	09:15 – 10:00	10:00 – 10:45	10:45 – 11:30	11:30 – 12:10	12:10: - 12:50	12:50 – 02:00	02:00 – 03:00	
	Lecture Pathology		Tutorial Pathology / Monthly Test PBL session 1 & PBL Session 2 (Alternate week)				Prayer Time		

# **9) Table of Specification Examination**

**MBBS 4<sup>th</sup> Professional Examination**  
**Special Pathology**  
**Table of Specifications**  
**MCQs and SEQs**

<b>Sr. No.</b>	<b>Unit</b>	<b>SEQs</b>	<b>MCQs</b>
1	Cardiovascular System	01	05
2	Haemopoietic & Lymphoid System	01	05
3	Respiratory System	01	05
4	Oral cavity and gastrointestinal Tract	02	09
5	Hepatobiliary System	01	05
6	Urinary System	01	05
7	Male Genital System	01	05
8	Female Genital System	01	05
9	Disease of Breast	01	05
10	Endocrinology	01	05
11	Musculo Skeletal System & Bones & Joints	01	05
12	Central Nervous System	01	02
13	Clinical Chemistry	01	03
14	Skin	-	01
<b>Total</b>		<b>14</b>	<b>65</b>

**Table of Specifications for MCQs**

<b>Sr. No.</b>	<b>Topic / Chapter</b>	<b>No. of MCQs</b>
1	<b>Cardio-vascular Systems</b>	
	Aneurysms of blood vessels	1
	Heart Failure	1
	Rheumatic Heart Disease	1
	Ischemic Heart Disease	1
	Pericardial Disease / Tumors of heart or Blood Vessels	1
2	<b>Hematology</b>	
	RBC Disorders	2
	WBC Disorders	2
	Bleeding and Coagulation disorders	1
3	<b>Respiratory System</b>	
	Diseases of vascular Origin	1
	Chronic Obstructive Pulmonary Disease	1
	Pulmonary Infections	1
	Tumors	2
4	<b>Oral Cavity and Gastrointestinal Tract</b>	
	Oral Cavity	2
	Peptic Ulcer	1
	CA Stomach	1
	Appendix	1
	Esophagus	1
	CA intestinal Inflammatory bowel Disease	1
	Pancreatitis	1
5	<b>Hepatobiliary System</b>	
	Infectious Disease	2
	Cirrhosis Liver	1
	Jaundice and Cholestasis	1
	Hepatocellular CA	1
6	<b>Urinary System</b>	
	Glomerular disease	2
	Disease affecting tubules	1
	Tumors	1
	Urinary Bladder	1
7	<b>Male Genital System</b>	
	Testis	3
	Prostate	2
8	<b>Female Genital System</b>	

	Cervix	1
	Endometrium	2
	Ovary	2
9	<b>Disease of Breast</b>	
	Inflammation	1
	Carcinoma Breast	4
10	<b>Endocrinology</b>	
	Pituitary Gland	1
	Thyroid Gland	3
	Adrenal Gland	1
11	<b>Musculo – skeletal Systems and Bones &amp; Joints</b>	
	Muscular Dystrophy	1
	Diseases of Peripheral Nerve	1
	Arthritis	1
	Tumor of Bones	1
	Infections	1

# **10) Format of Professional Examination**

**MBBS Fourth Professional Examination**  
**Special Pathology**

+													
Sr. No	Subject	Theory							Sub Total	Practical	Internal Assessment	Sub Total	Grand Total
		SEQs			MCQs			Internal Assessment		Viva and OSPE			
1	Special Pathology	70 marks	14 SEQs	5 Marks Each	65 Marks	65 MCQs	1 Marks Each	15	150	135	15	150	300
			2 Hours			1 Hour 5 Min							

**Marks Distribution of Theory paper**

MCQ		SEQ		Internal assessment	Grand Total marks
65 MCQ (one mark each)	<b>Total marks</b>	14 SEQ (05 marks each)	<b>Total marks</b>	15	150
	65		70		

**Marks Distribution of OSPE / VIVA**

OSPE		VIVA		Internal assessment	Practical book	Grand total marks
Observed (02 stations – 3.5 marks each)	Unobserved (18 stations – 3.5marks each)	External examiner	Internal examiner			
07	63	30	30	15	05	150



# **11) Sample Questions**

### Send Up Examination

Total Marks: 65

Time Allowed: 1 hour

Name of Student: \_\_\_\_\_

Roll No: \_\_\_\_\_

**Read the following questions carefully and select the accurate answers given below:**

1. A 60-year-old lady presents with a long history of poorly controlled hypertension, diabetes mellitus, and signs of renal failure. During the workup of her disease, a renal biopsy is performed and reveals the lumens of small blood vessels to be narrowed by uniform, homogeneous, pink deposits within the walls of the vessels. What is the best diagnosis?
  - a) Arteriolosclerosis obliterans
  - b) Hyaline arteriolosclerosis
  - c) Hyperplastic arteriolosclerosis
  - d) Medial calcific sclerosis
  - e) Thromboangitis obliterans
2. A 55-year-old-male is discharged after being observed in the hospital for 4 days following a myocardial infarction. He returns to his normal activities, which include sedentary work only. This point in time following a myocardial infarct is noteworthy for the special danger of which of the following?
  - a) Arrhythmia
  - b) Mural thrombosis
  - c) Myocardial (pump) failure
  - d) Myocardial rupture
  - e) Ventricular aneurysm
3. A 9-year-old girl is diagnosed with acute rheumatic fever. Instead of recovering as expected, her condition worsens, and she dies. Which of the following is the most likely cause of death?
  - a) Central nervous system involvement
  - b) Endocarditis
  - c) Myocarditis
  - d) Pericarditis
  - e) Streptococcal sepsis
4. A 26-year-old woman of northern European lineage presents with anemia. Her father and paternal aunt had a similar illness that was treated successfully by splenectomy. Her peripheral blood smear is showing red cells without central pallor and also prominent polychromasia. Which of the following additional abnormalities is expected?
  - a) Bilirubinuria
  - b) Decreased mean corpuscular volume
  - c) Increased direct (conjugated) serum bilirubin
  - d) Polychromatophilia erythrocytes on peripheral blood smear
  - e) Positive DAT (Coombs) test

5. A 67-year-old man who has recently had an aortic valve replacement now presents with pallor and fatigue. The red blood cell count is decreased, and schistocytes are reported on examination of a peripheral blood smear. In addition, his indirect (unconjugated) bilirubin is significantly elevated. The cause of the anemia is likely
  - a) Cold agglutinin disease
  - b) Dietary deficiency
  - c) Hereditary spherocytosis
  - d) Mechanical disruption of red cells
  - e) Paroxysmal nocturnal hemoglobinuria
6. A febrile 28-year-old lady with systemic lupus erythematosus (SLE) has a 4-day history of precordial chest pain that increase when she leans back and decrease when she leans forward. She now complains of progressively worsening dyspnea. Physical examination shows muffled heart sounds and neck vein distention during inspiration. Blood pressure and impulse amplitude both decrease during inspiration. What is most likely diagnosis?
  - a) Aortic dissection
  - b) Constrictive pericarditis
  - c) Dilated cardiomyopathy
  - d) Pericarditis with effusion
  - e) Restrictive cardiomyopathy
7. A 29-year-old woman returns to her physician for follow-up of hypertension that has been poorly controlled in spite of numerous antihypertensive medications. It is decided to evaluate the patient for possible “secondary” hypertension. Which of the following is a well-known cause of secondary hypertension?
  - a) Ethnicity
  - b) Obesity
  - c) Renal artery stenosis
  - d) Smoking
  - e) Stress
8. During a routine physical examination, a 66-year old man is found to have a 5-cm pulsatile mass in his abdomen. Angiography reveals a marked dilation of his aorta distal to his renal arteries. Which of the following is the most likely cause of this aneurysm?
  - a) Atherosclerosis
  - b) Congenital defect
  - c) Hypertension
  - d) Previous syphilitic infection
  - e) Trauma
9. Antibodies made in the spleen that are directed against the cell surface antigens GpIIb / IIIa or GpIb/IX are characteristically seen in individuals with
  - a) Cold autoimmune hemolytic anemia
  - b) Felty’s syndrome
  - c) Hashimoto’s thyroiditis
  - d) Immune thrombocytopenic purpura
  - e) Warm autoimmune hemolytic anemia

10. A 72-year-old woman presents with severe bone pain and frequent respiratory infections. Serum protein electrophoresis demonstrates an M protein spike in the gamma region. Radiographs of the skull, long bones, and spine demonstrate multiple “punchedout” lesions, and bone marrow aspiration demonstrates large numbers of neoplastic plasma cells. Which of the following statements is true of this disorder?
- a) Although this patient presents at 70 years of age, the average age of presentation is 50 years of age
  - b) Renal insufficiency is a common cause of death
  - c) The M spike is most often an IgM
  - d) The M spike is most often polyclonal in nature
  - e) This disorder is the most common T-cell neoplasm
11. A 71-year-old woman is lethargic and spends most of her days in bed. She develops an acute febrile illness and is noted to be coughing up increasing quantities of yellowish sputum. Her temperature is 38°C. A chest x-ray shows infiltrates involving the left lower lobe. A sputum sample shows numerous neutrophils and gram-positive diplococci. Which of the following infectious agents is most likely to cause her pulmonary disease?
- a) *Cryptococcus neoformans*
  - b) *Listeria monocytogenes*
  - c) *Mycobacterium tuberculosis*
  - d) *Pneumocystis jiroveci*
  - e) *Streptococcus pneumoniae*
12. A 50-year-old woman who is a non-smoker, but she has had increasing shortness of breath, fever, weight loss, and night sweats for the past 4 months. On physical examination, there are fine rales auscultated in all lung fields. A chest radiograph reveals hilar lymphadenopathy and a reticulonodular pattern of small densities in all lung fields. A transbronchial biopsy is performed that microscopically shows numerous small pulmonary interstitial non-caseating granulomas. Which of the following is the most likely diagnosis?
- a) Adenocarcinoma in situ
  - b) Berylliosis
  - c) Histoplasmosis
  - d) Sarcoidosis
  - e) Usual interstitial pneumonitis
13. A 43-year-old woman has had increasing dyspnea for 8 years. On physical examination there is bilateral hyperresonance to percussion in all lung fields. A chest x-ray reveals increased lung volumes with flattening of the diaphragmatic leaves bilaterally. A chest CT scan demonstrates decreased attenuation in all lung fields, particularly lower lobes. Which of the following laboratory findings is she most likely to have?
- a) Decreased serum alpha-1-antitrypsin
  - b) Decreased serum ceruloplasmin
  - c) Increased sweat chloride
  - d) Positive urine nicotine
  - e) Positive urine opiates
14. A 74-year-old man had left eye problem with enophthalmos, meiosis and ptosis. A chest - X-ray showed right upper lob opacification. Which of the following condition he has?
- a) Bronchiectasis
  - b) Bronchogenic carcinoma

- c) Bronchopneumonia
  - d) Sarcoidosis
  - e) Tuberculosis.
- 15.** A 20-year-old previous healthy male suddenly developed shortness of breath when he was jogging and was brought to hospital. On clinical examination, there was no breath sounds audible on right chest. A right chest tube was inserted and air rushes out. Which of the following type of lung disease he has?
- a) Asthma
  - b) Bronchiectasis
  - c) Centriacinar emphysema
  - d) Chronic bronchitis
  - e) Distal acinar emphysema
- 16.** An old patient presented in OPD with 2 months' history of melena, epigastric pain, nausea, loss of appetite and weight loss. Gastroscopy showed loss of rugal folds in lesser curvature near pylorus in an area of 4 cm. MRI showed thick wall of stomach with loss of rugal folds. On examination he had pallor and enlarged left cervical lymph node. What is your most likely diagnosis?
- a) Acute gastritis
  - b) Chronic gastritis
  - c) Gastric carcinoma
  - d) Gastric polyp
  - e) Peptic ulcer
- 17.** A one-year-old child after introduction of wheat to the diet presented with abdominal distension, irritability, anorexia, diarrhea and failure to thrive. What will the duodenal biopsy most likely show?
- a) Blunting of villi
  - b) Crypt distortion and abscess
  - c) Dysplasia
  - d) Intraepithelial eosinophils, crypt hyperplasia
  - e) Intraepithelial lymphocytes, crypt hyperplasia, blunting of villi
- 18.** A patient presented in OPD with persistent history of nausea, upper abdominal discomfort for last two years. Gastroscopy showed hyperemia and nodularity of the gastric antrum. Biopsy showed curved organisms within the superficial mucus overlying epithelial cells in the surface and neck regions, intraepithelial lymphocytes and sheets of plasma cells and lymphocytes in the superficial lamina propria. What is your most likely diagnosis?
- a) Acute gastritis
  - b) Chronic autoimmune gastritis
  - c) Chronic gastritis due to H Pylori
  - d) Granulomatous gastritis
  - e) Lymphocytic gastritis
- 19.** A 45-year-old female presented with a mobile swelling in right parotid gland. Biopsy showed both epithelial and mesenchymal components. Which one of the following is the most common benign tumor of salivary gland?
- a) Adenocarcinoma

- b) Adenoid cystic carcinoma
  - c) Mucoepidermoid carcinoma
  - d) Pleomorphic adenoma
  - e) Squamous cell carcinoma
- 20.** A 45-year-old male presented with long history of recurrent diarrhea with blood and mucus in stools, pruritus and jaundice. There is characteristic beading of Barium column in radiographs of intrahepatic and extra hepatic biliary tree. Which of the following is the most likely diagnosis?
- a) Hepatocellular carcinoma
  - b) Primary biliary cholangitis
  - c) Primary sclerosing cholangitis
  - d) Secondary biliary cirrhosis
  - e) Viral hepatitis
- 21.** A patient presented with a white patch on tongue that could not be scraped off. Biopsy of the lesion showed tissue covered by stratified squamous epithelium with dysplasia. There was no history of any disease. Which of the following is the likely diagnosis?
- a) Candidiasis
  - b) Erythroplakia
  - c) Hairy leukoplakia
  - d) Leukoplakia
  - e) Malakoplakia
- 22.** A 40-year-old smoker came to OPD with 2 years' history of heart burn, dysphagia and regurgitation of sour tasting gastric contents. Endoscopy shows red velvety mucosa. What will be the microscopic finding in Barrette esophagus?
- a) Mucosa infiltrated with eosinophils
  - b) Mucosa lined by ciliated columnar epithelium
  - c) Mucosa lined by intestinal type columnar cells and goblet cells
  - d) Mucosa lined by stratified squamous epithelium
  - e) Neutrophils in epithelium
- 23.** A 30-year-old patient presented with recurrent episodes of diarrhea with mucus and perianal fistula. Colonoscopy revealed skip lesions and long serpentine ulcers in jejunum. Intestinal biopsy revealed transmural inflammation and non-caseating granulomas. What is your likely diagnosis?
- a) Celiac disease
  - b) Cholera
  - c) Crohn disease
  - d) Tuberculosis
  - e) Ulcerative colitis
- 24.** A 25-year-old female presented with pain right iliac fossa for 2 days. Acute appendicitis was diagnosed and appendicectomy was performed. There was a small tumor in the tip of appendix. Which of the following is the most common tumor that can arise in appendix?
- a) Adenocarcinoma
  - b) Carcinoid
  - c) Gastrointestinal stromal tumor (GIST)

- d) Mucous cystadenoma
  - e) Serous cystadenoma
- 25.** A 55-year-old alcoholic came to OPD with history of vomiting and severe pain in abdomen referred to upper back since morning. Blood examination showed raised amylase and lipase. On third day he had oliguria. Laboratory investigations showed raised blood urea nitrogen and serum creatinine. Which of the following complication of acute pancreatitis has he developed?
- a) Acute renal failure/AKI
  - b) Acute respiratory distress syndrome
  - c) Diabetes mellitus
  - d) Disseminated intravascular coagulation
  - e) Pancreatic abscess
- 26.** A patient presented with 2 years' history of jaundice off and on. Her laboratory investigations showed serum bilirubin 3 mg/dl, raised AST and ALT, Anti HBs antibody +ve, HBsAg +ve, HBeAg +ve, HBV-DNA. What is your diagnosis?
- a) HAV acute hepatitis and previous vaccination with HBV
  - b) HBV acute hepatitis with active viral replication
  - c) HBV chronic carrier state
  - d) HBV chronic hepatitis with active viral replication
  - e) Past infection with HBV
- 27.** A middle aged female who had been taking acetaminophen for her joint pains for one week, presented with nausea, vomiting, jaundice, followed by coagulation defects, disturbances in consciousness, and confusion. What is your diagnosis?
- a) Acute liver failure
  - b) Alzheimer's disease
  - c) Chronic liver failure
  - d) Cirrhosis
  - e) Portal hypertension
- 28.** A patient 2 weeks after eating from café developed jaundice. Her laboratory investigations showed serum bilirubin 3 mg/dl, raised AST and ALT, Anti HBs antibody +ve, HBsAg –ve, HBeAg –ve, and IgM Anti HAV +ve. What is your diagnosis?
- a) HAV acute hepatitis
  - b) HAV chronic hepatitis
  - c) HAV Acute hepatitis and previous vaccination with HBV
  - d) HBV acute hepatitis
  - e) Past infection with HBV
- 29.** A patient presented in emergency with altered state of consciousness and upper gastrointestinal bleeding. He had past history of chronic liver disease for the last 2 years. Abdominal ultrasound showed mass in liver. Which of the following is not the precursor lesion for hepatocellular carcinoma?
- a) Ground glass hepatocytes
  - b) Hepatocellular adenomas
  - c) Large cell change
  - d) Low- and high-grade dysplastic nodules

- e) Small cell change
- 30.** A patient comes in OPD with 2 years' recurrent history pain in lumbar region, accompanied by dysuria, and increased frequency of micturition. Complete examination urine showed puss cells, pus cell casts and bacteria. Urine culture showed growth of proteus. Abdominal ultrasound showed staghorn stone in the kidney. BUN and serum creatinine were normal. What is your likely diagnosis?
- Acute kidney injury
  - Acute pyelonephritis
  - Chronic kidney disease
  - Chronic pyelonephritis
  - End stage kidney disease
- 31.** A 30-year-old male who is infertile and taking drugs from hakim has developed periorbital edema. His blood pressure is 180/110 mmHg. The routine blood picture is normal. BUN and creatinine are raised. Albumin is 2.3 gm/dl and globulin is 4.1 gm/dl. Urine revealed 3+ proteins on dip stick. The 24-hour urine protein is 3 gm/day. Renal biopsy showed thickened glomerular basement membranes and narrow capillary lumens. Silver stain shows spikes on GBM. The tubular lumens contain eosinophilic casts. There is inflammatory infiltrate in interstitium. What type of kidney disease has he developed?
- Acute proliferative glomerulonephritis
  - Focal segmental glomerulonephritis
  - Membranous glomerulonephritis
  - Membranoproliferative glomerulonephritis
  - Minimal change disease
- 32.** A 3-year-old child is brought by his mother to a pediatric surgeon. On abdominal examination, there is large palpable, non-tender mass on the right side of abdomen. CT abdomen demonstrates a 10 cm diameter roughly rounded mass involving the lower pole of right kidney. Nephrectomy was performed. Which of the following features are likely to be seen on microscopic examination?
- Blastemal, epithelial and stromal components
  - Channels lined by cells showing hobnailing
  - Malignant glands
  - Nests of polygonal cells with clear cytoplasm
  - Papillae lined by cuboidal cells and cores containing foam cells
- 33.** A 3-year-old child is evaluated for the development of progressive peripheral edema. Physical examination reveals that he is afebrile, and his blood pressure is within normal limits. Laboratory examination finds decreased serum albumin, increased serum cholesterol, and normal BUN and creatinine levels. Urine examination shows massive proteinuria and lipiduria, but no red cell casts. What is your likely diagnosis?
- Chronic pyelonephritis
  - Membranous glomerulopathy
  - Minimal change disease
  - Post streptococcal glomerulonephritis
  - Systemic Lupus Erythematosus



34. A 55-year-old male presented with hematuria, costovertebral pain, and weight loss for 2 months. There was a palpable mass in right lumbar region. Nephrectomy was done. Biopsy report showed nests of polygonal cells with central nucleus and clear cytoplasm containing glycogen and lipids. Which of the following variant of renal cell carcinoma is it?
- Chromophobe carcinoma
  - Clear cell carcinoma
  - Collecting duct carcinoma
  - Lipid carcinoma
  - Papillary carcinoma
35. A 28-year-old African-American man who was known to have sickle cell disease presented in the emergency department with a painful erection. The patient told that the erection had started 4 hours ago. This condition is referred to as:
- Balanitis
  - Hypospadias
  - Peyronie disease
  - Phimosis
  - Priapism
36. A 6-year-old boy was brought to the pediatrician for a physical examination prior to beginning elementary school. On examination, the boy had only one palpable testis in the scrotum. Further examination revealed a palpable mass in the left inguinal region. Most likely diagnosis is:
- Cryptorchidism
  - Hydrocele
  - Orchitis
  - Torsion of the spermatic cord
  - Varicocele
37. A 25-year-old man presented to his primary care physician complaining of painless enlargement of the testis. Further laboratory studies revealed an increase in serum HCG. Of the following, which is the most likely diagnosis?
- Dysgerminoma
  - Embryonal carcinoma
  - Seminoma
  - Teratoma
  - Yolk sac tumor
38. A 65-year-old man visited a Urologist with complaints of urinary frequency, hesitancy, and dysuria. Digital rectal examination revealed an enlarged prostate, and the consistency is rubbery and nodular. Serum PSA is modestly increased. Which of the following is most closely related to the pathogenesis of the likely disorder described here?
- $\alpha$ -fetoprotein
  - Dihydrotestosterone
  - Estrogen
  - Human chorionic gonadotropin
  - TESTOSTERON
39. A 35-year-old man noted asymmetric enlargement of the scrotum over the past 4 months. On physical examination, the right testis was twice its normal size and had increased tenderness to palpation. The right testis was biopsied. The epididymis and the upper aspect of the right testis had extensive granulomatous inflammation with epithelioid cells, Langhans giant cells, and caseous necrosis. Which of the following infections is the most likely cause of these findings?
- Chancroid

- b) Gonorrhea
  - c) Mumps
  - d) Syphilis
  - e) Tuberculosis
40. A 29-year-old woman taking oral contraceptives for a year has noted vaginal bleeding that is not severe, but it has occurred nearly every day over the past 5 weeks. On pelvic examination, there is a 0.7 cm polypoid mass noted to extend outward from the cervical os. A biopsy of this lesion is performed. Which of the following microscopic findings is most likely to be found in this lesion?
- a) Clear cell adenocarcinoma
  - b) Endocervical adenocarcinoma
  - c) Endocervical polyp
  - d) Microglandular hyperplasia
  - e) Sarcoma botryoides
41. A 51-year-old perimenopausal woman has had vaginal bleeding for the past 6 months. On physical examination she has an enlarged, nodular uterus. A hysterectomy is performed. The surgeon notes several 0.2 to 1 cm translucent, smooth-surfaced, thin-walled, fluid-filled cysts near the fimbriated end of the right fallopian tube. Which of the following is the most likely diagnosis for these cysts?
- a) Gartner duct cysts
  - b) Krukenberg tumors
  - c) Mucinous cystadenomas
  - d) Parovarian cysts
  - e) Pelvic inflammatory disease
42. A 47-year-old woman has noted a pressure sensation, but no pain, in her pelvic region for the past 5 months. On physical examination there is a right adnexal mass. An ultrasound scan shows a 10 cm fluid-filled cystic mass in the right ovary, along with ascitic fluid. A fine needle aspirate of the mass is performed and cytologic examination of clear fluid aspirated from the mass reveals clusters of malignant epithelial cells surrounding psammoma bodies. Which of the following neoplasms is she most likely to have?
- a) Endometrioid carcinoma
  - b) Malignant mesothelioma
  - c) Mature cystic teratoma
  - d) Serous cystadenocarcinoma
  - e) Squamous cell carcinoma
43. 28-year-old sexually active woman undergoes a routine examination. Pelvic examination reveals no abnormalities. A Pap smear is obtained. The cytopathology report indicates the presence of severely dysplastic cells (high grade squamous intraepithelial lesion, or HSIL). A biopsy of the cervix is performed, and on microscopic examination shows cervical intraepithelial neoplasia III (CIN III). Infection with which of the following organisms is most likely to cause her disease?
- a) *Candida albicans*
  - b) Epstein-Barr virus
  - c) Herpes simplex virus infection
  - d) Human papillomavirus
  - e) *Trichomonas vaginalis*

44. A 22-year-old woman passes grape-like masses of tissue per vagina in the 16th week of her first pregnancy. She had not felt any fetal movement at any time. On physical examination she measures 18 weeks in size. A D&C is performed, yielding 1000 cc of 0.5 to 1.5 cm fluid-filled vesicles. Microscopic examination of this tissue shows large avascular villi along with trophoblastic proliferation. Which of the following is the best method to employ for her follow-up care?
- a) Chest radiograph
  - b) Endometrial biopsy
  - c) Pap smear
  - d) Pelvic ultrasound
  - e) Serum beta-HCG
45. A female patient was diagnosed with breast cancer. The mass was mobile, not adherent to skin or chest wall and there was no thickening of skin or ulceration. Radical mastectomy was done. Biopsy report showed invasive ductal carcinoma, grade III, three axillary lymph nodes were positive for metastatic carcinoma. The size of the primary tumor was 2 cm and no distant metastasis were found. The tumor will be staged as:
- a) Stage I
  - b) Stage II
  - c) Stage III
  - d) Stage III b
  - e) Stage IV
46. Of the special histological subtypes of breast cancer, which of the following metastasizes most frequently to peritoneum, retroperitoneal tissue and leptomeninges?
- a) Invasive ductal carcinoma
  - b) Invasive lobular carcinoma
  - c) Medullary carcinoma
  - d) Mucinous carcinoma
  - e) Secretory carcinoma
47. A 30-year-old female presented with mass in right breast that was fixed to the chest wall. Biopsy of the mass showed invasive ductal carcinoma of breast. Her mother also died of breast cancer. Which of the following genes are mutated in familial carcinoma of breast?
- a) C MYC
  - b) BRCA I & BRCA II
  - c) KRAS
  - d) P 16
  - e) PTEN & p53
48. Mammography of a 50-year-old female showed clustered and linear branching areas of calcification. Biopsy of the area showed tumor cells with pleomorphic high grade nuclei and area of central necrosis. There was no stromal invasion. What is your diagnosis?
- a) Comedo ductal carcinoma in situ
  - b) Invasive ductal carcinoma
  - c) Lobular carcinoma in situ
  - d) Non comedo ductal carcinoma in situ
  - e) Paget's disease

- 49.** A 50-year-old female presented with palpable periareolar mass associated with thick white nipple secretion and skin retraction. There was no pain and erythema. Biopsy of the mass showed dilated ducts with inspissated secretion and macrophages. Stroma revealed chronic inflammatory cell infiltrate and granulomas. What is your diagnosis?
- Acute mastitis
  - Duct ectasia
  - Ductal carcinoma
  - Granulomatous mastitis
  - Squamous metaplasia of lactiferous ducts
- 50.** A 25-year-old woman presents with secondary amenorrhea, galactorrhea, and headache. MRI reveals a pituitary adenoma. Which hormone is most likely elevated?
- ACTH
  - Growth Hormone
  - LH
  - Prolactin
  - TSH
- 51.** A 35-year-old woman presents in the OPD of SSMC with weight loss, palpitations, and exophthalmos. Her laboratory investigations show:
- Elevated free T4
  - Elevated free T3
  - Low TSH
  - Positive TSH receptor antibodies
- What is the most likely diagnosis?
- Hashimoto's thyroiditis
  - Graves' disease
  - Thyroid cancer
  - Toxic multinodular goiter
  - Subclinical hyperthyroidism
- 52.** A 40-year-old female is suffering from primary hyperthyroidism. Which of the following report of thyroid function test confirm this diagnosis?
- High TSH, high T4, T3 levels
  - High TSH, low T4, T3 levels
  - Low TSH, high T4, T3 levels
  - Low TSH, low T4, high T3 levels
  - Low TSH, low T4, T3 levels
- 53.** A 50-year-old man presents in medical OPD with fatigue, weight loss, and hypotension. Laboratory results show:
- Low cortisol levels
  - Low aldosterone levels
  - Elevated ACTH levels
- What is the most likely diagnosis?
- Adrenal crisis
  - Congenital adrenal hyperplasia
  - Primary adrenal insufficiency (Addison's disease)

- d) Secondary adrenal insufficiency
  - e) Tertiary adrenal insufficiency
- 54.** A 42-year-old obese male presents in OPD with complaints of increased frequency of urine and frequent infections for last 6 months. His Fasting plasma glucose is 120 mg/dl (Normal levels < 95mg/dl). Oral Glucose tolerance test is performed which shows 2hr Plasma Glucose levels of 165 mg/dl (Normal level<140 mg/dl). What is the diagnosis?
- a) Diabetes mellitus
  - b) Impaired fasting glucose
  - c) Impaired glucose tolerance
  - d) Normal
  - e) Prediabetes
- 55.** An 80-year-old woman has had no major medical problems, but she has never been physically active for most of her life. One day she falls out of bed and immediately notes a sharp pain in her left hip. She is subsequently unable to ambulate without severe pain. Radiographs show not only a fracture of the left femoral head, but also a compressed fracture of T10. Which of the following conditions is she most likely to have?
- a) Acute osteomyelitis
  - b) Osteogenic imperfecta
  - c) Osteoporosis
  - d) Polyostotic fibrous dysplasia
  - e) Vitamin D deficiency
- 56.** A 54-year-old female has noted constant, dull right hip pain for the past 3 months. On physical examination, has diminished range of motion of the right hip. A radiograph reveals a 10 x 13 cm mass involving the right ischium of the pelvis. The mass has irregular borders and there are extensive areas of bony destruction along with some scattered calcifications. The lesion is resected, and grossly the mass has a bluish-white cut surface. Which of the following is the most likely diagnosis?
- a) Chondrosarcoma
  - b) Enchondroma
  - c) Osteoblastoma
  - d) Osteosarcoma
  - e) Paget sarcoma.
- 57.** A female of 42 years pains her left 1st metatarsophalangeal joint, but there is no overlying skin ulceration. A joint aspirate is performed and on microscopic examination reveals numerous neutrophils and needle-shaped crystals. Over the next 3 weeks, he has two more similar episodes. On physical examination between these attacks, there is minimal loss of joint mobility. Which of the following laboratory test findings is most characteristic for his underlying disease process?
- a) High rheumatoid factor titer
  - b) Hypercalcemia
  - c) Hyperglycemia
  - d) Hyperuricemia
  - e) Positive antinuclear antibody
- 58.** A 6-year-old boy has pain in his left leg that has persisted for 3 weeks. On physical examination his temperature is 37.9°C. A radiograph of the leg reveals a mass in the diaphyseal region of the left femur with overlying cortical erosion and soft tissue

extension. A bone biopsy is performed and the lesion on microscopic examination shows numerous small round blue cells. Which of the following neoplasms is he most likely to have?

- a) Chondroblastoma
  - b) Ewing sarcoma
  - c) Medulloblastoma
  - d) Neuroblastoma
  - e) Osteoblastoma
- 59.** A female of 39 years old has developed complaint of slowly and insidiously onset of malaise, fatigue, and generalized musculoskeletal pain. The metacarpophalangeal and proximal interphalangeal joints are swollen, warm, and painful. The joints are stiff when patient rises in the morning or following inactivity. ulnar deviation of the fingers and flexion-hyperextension of the fingers is also noticed. Which of the following is most likely diagnosis?
- a) Gout
  - b) Osteoarthritis
  - c) Osteomyelitis
  - d) Pseudogout
  - e) Rheumatoid arthritis
- 60.** A neonate presented with history of fever, convulsions, and neck rigidity. Lumbar puncture was done. The pressure of CSF was raised and it was cloudy. Gram staining of CSF showed gram positive cocci. What will the cytological and biochemical examination of CSF show?
- a) Almost normal sugar, slightly increased protein, slight increase in lymphocytes
  - b) Decreased sugar, decreased protein, slight increase in lymphocytes
  - c) Increased sugar, increased protein, neutrophils
  - d) Markedly decreased sugar, markedly increased protein, polymorphs
  - e) Slightly decreased sugar, moderately increased protein, slight increase in cells, lymphocytes are present in large number than neutrophils
- 61.** A 5-year-old child presented with history of headache and seizures. Brain scan showed a solid tumor in the midline of cerebellum. Biopsy of tumor showed small round cells with scanty cytoplasm, increased mitosis and necrosis. What is your diagnosis?
- a) Diffuse astrocytoma
  - b) Ependymoma
  - c) Medulloblastoma
  - d) Meningioma
  - e) Pilocytic astrocytoma
- 62.** A 25-year-old woman presents in gynecology OPD with irregular menstrual cycles, hirsutism, acne, male pattern baldness. What is the most likely diagnosis?
- a) Congenital adrenal hyperplasia
  - b) Cushing's syndrome
  - c) Hyperprolactinemia
  - d) Hypothyroidism
  - e) Polycystic ovary syndrome (PCOS)

- 63.** A 30-year-old man presents in medical OPD with low libido, erectile dysfunction, gynecomastia. Lab investigations show low testosterone levels. What is the most likely diagnosis?
- a) Hypergonadism
  - b) Hypogonadism
  - c) Klinefelter syndrome
  - d) Pituitary adenoma
  - e) Testicular cancer
- 64.** A 28-year-old female presents with:
- Amenorrhea for 6 months
  - Galactorrhea (spontaneous milk production)
  - Headaches and visual disturbances
  - Laboratory results:
    - Prolactin level: 150 ng/mL (normal range: 5-30 ng/mL)
    - TSH: 2.5  $\mu$ U/mL (normal range: 0.5-5  $\mu$ U/mL)
    - Free T4: 1.2 ng/dL (normal range: 0.8-1.8 ng/dL)
- What is the most likely cause of this patient's symptoms?
- a) Hyperthyroidism
  - b) Hypothyroidism
  - c) Idiopathic hyperprolactinemia
  - d) Pituitary adenoma (prolactinoma)
  - e) Polycystic ovary syndrome (PCOS)
- 65.** A 70-year-old male presents with a slowly growing, ulcerated lesion located on the nose. The lesion was excised and histologic sections reveal nests of malignant basaloid cells with peripheral palisading. The tumor cells were infiltrating the dermis and subcutaneous tissue. What is your diagnosis?
- a) Adenocarcinoma
  - b) Basal cell carcinoma
  - c) Malignant melanoma
  - d) Merkel cell carcinoma
  - e) Squamous cell carcinoma

### Send Up Examination (SEO)

Total Marks: 70

Time Allowed:

Name of Student: \_\_\_\_\_

Roll No: \_\_\_\_\_

### **Attempt All Questions. All Questions Carry Equal Marks (5)**

1. A lady has brought her child of 1 year who had multiple transfusions, and is not progressing well. She had cousin marriage and they both are carriers of Hemoglobin disorder. Please describe genetics, clinical features and pathophysiology of this Quantitative hemoglobin disorder.  
(1.5+1.5+2) = (05)
2. A 50-year-old man emphasis pf persistent headache and sleep disturbance for many days. He has visited ophthalmologist and he does not have any visual problem. His blood pressure is increased on 2-3 occasions and then he is labelled as hypertensive.
  - a) What is criteria of hypertension? (01)
  - b) What are cause of hypertension? (02)
  - c) Describe vascular changes in hypertension. (02)
3. A man of 53-year-old who is cigarettes smoking from last 10 years has developed insidious onset of dyspnea with wheezing and productive cough. On examination chest is hyper resonance. Chest x- Ray shows barrel with flattened diaphragm. His respiratory functions are disturbed with FEVI is reduced.
  - a) What is most likely diagnosis? (01)
  - b) Define the EMPHYSEMA and enlist its types. (02)
  - c) Give the pathogenesis and morphology of CENTRI-ACINAR EMPHYSEMA. (02)
4. A patient presented with history of fatigue, weakness, changes in bowel habits, cramping left lower quadrant discomfort and weight loss. Complete examination of blood showed iron deficiency anemia. Stool was positive for occult blood. Abdominal ultrasound showed mass in colon causing narrowing of the lumen.
  - a) Which is the most common malignant tumor that arises in colon. (01)
  - b) Give the microscopic features of this tumor. (02)
  - c) Give the classic adenoma carcinoma sequence. (02)
5. A patient presented in OPD with persistent history of nausea, upper abdominal discomfort for last two years. Antral biopsy showed antral mucosa lined by intact columnar epithelium. Curved/spiral shaped bacilli were seen covering the epithelium. Lamina propria was infiltrated with plasma cells and lymphocytes.
  - a) What is your diagnosis? (01)
  - b) Give the pathogenesis of this disease. (02)
  - c) Write its complications. (02)
6. A 50-year-old alcoholic presented with jaundice, ascites, palmer erythema and caput medusa. Laboratory investigations showed serum bilirubin 3 mg/dl, albumin 2 mg/dl, raised AST and ALT. Serum viral markers were negative.
  - a) What is your diagnosis? (01)



- b) Write the morphology of three forms of this disease. (04)
7. A 57-year-old male presents with heaviness and dull pain in left flank for the last couple of weeks. His urine analysis reveals presence of red blood cells. The ultrasound examination shows a 6 cm rounded mass in kidney suspected to be cancer.
- a) Name the histological variants of renal cell carcinoma. (02)
- b) Describe the gross and microscopic morphology of the most common variant of Renal cell carcinoma. (03)
8. A 70-year-old man presented to the emergency department with severe back pain. His history was negative for trauma or other complaints. He denied urinary frequency, hesitancy, or dysuria. A digital rectal examination confirmed the presence of a firm, hard, asymmetrical, and stony prostate. Imaging of the spine suggested osteoblastic involvement of the spine at lumbar vertebrae L3 to L4. Diagnosis of Ca Prostate was made.
- a) Describe briefly about pathogenesis and morphological features. (2+2)
- b) Name the two serum markers which will be elevated. (0.5+0.5)
9. A 45-year-old lady feels heaviness in her right pelvic for last 06 months. On examination there is right adnexal mass. An ultrasound scan showed 10 cm fluid fill cystic mass. FNAC revealed clusters of malignant cells surrounded by psammoma bodied.
- a) What is most likely diagnosis. (01)
- b) Enlist the OVARIAN – NEOPLASM. (1.5)
- c) Give gross and microscopic features of mature TERATOMA. (2.5)
10. A mastectomy specimen from a 54-year-old woman reveals an irregular infiltrating mass measuring 7 cm in diameter. On microscopic examination, it is diagnosed as a case of invasive ductal carcinoma of no special type.
- a) Give the microscopic features of invasive ductal carcinoma of breast. (2.5)
- b) What are the prognostic and predictive factors for carcinoma breast? (2.5)
11. A 35-year-old man, presents with a 6-month history of weight loss, palpitations, tremors, exophthalmos, and pretibial myxedema. Laboratory results:
- TSH: <0.01  $\mu$ U/ml (normal: 0.5-5  $\mu$ U/ml)
  - Free T4: 4.2 ng/dl (normal: 0.8-1.8 ng/dl)
  - TPO-Ab: positive
  - Thyroid ultrasound: diffuse goiter
- a) What is the diagnosis? (0.5)
- b) How lab results favor your diagnosis? (1.5)
- c) Discuss the pathogenesis? (3.0)
12. An otherwise healthy 61-year-old man with no prior medical history has had increasing back pain and right hip pain for the past decade. The pain is worse at the end of the day. On physical examination he has bony enlargement of the distal interphalangeal joints. A radiograph of the spine reveals the presence of prominent osteophytes involving the vertebral bodies. There is sclerosis with narrowing of the joint space at the right acetabulum seen on a radiograph of the pelvis.
- a) What is most likely lesion? (01)
- b) Describe the pathogenesis and morphology of OSTEOARTHERITIS. (02)
- c) Tabulate the differences between Rheumatoid Arthritis and Osteoarthritis. (02)
13. A 15-years-old child presented with headache and seizures. Brain scan showed a cyst with tumor nodule in cerebellum. Biopsy of tumor showed astrocytes and Rosenthal fibers.

- a) What is your diagnosis and WHO grade of this tumor? (02)
- b) Name glial tumors. (03)
- 14.** A 40-year-old woman, presents with a 2-year history of weight gain, hirsutism, acne, hypertension, and buffalo hump.
- Laboratory results:
- 24-hour Urinary Free Cortisol: 300 µg/24h (normal: 4-50 µg/24h)
  - Midnight salivary cortisol: 25 µg/dl (normal: <1.5 µg/dl)
  - ACTH: 60 pg/mL (normal: 10-50 pg/ml)
  - Adrenal CT scan: 2.5 cm left adrenal nodule
- a) What is the diagnosis? (0.5)
- b) Describe pathogenesis? (2.0)
- c) Clinical features, and diagnostic options for this condition? (2.5)

**12)**

# **Recommended Books**

- Pathological basis of disease by Kumar, Cotran, Robbins.  
10<sup>th</sup> Ed
- Ackerman's surgical Pathology, 12<sup>th</sup> Ed.
- Clinical Pathology interpretation by A.H. Nagi 4<sup>th</sup> Edition
- Theory & practice of histopathology techniques by John D Bancroft 8<sup>th</sup> Edition
- Online journals & reading materials through HEC digital library

**13)**

# **Terminal Objectives**

# SYSTEMIC PATHOLOGY

## Learning objectives for systemic pathology courses include:

- **Analytical skills**  
Develop analytical and methodological skills to relate evidence-based medicine principles to clinical situations
- **Communication skills**  
Develop communication skills to communicate with patients about diagnoses, prognosis, and therapy
- **Critical analysis**  
Develop the ability to critically analyze patient information to place it in a differential diagnosis
- **Scientific literature**

## Develop the ability to study pathological pictures by consulting scientific literature

### Learning outcomes for pathology courses include:

- Understanding predisposing factors, causes, pathogenesis, morphology, and potential complications of diseases
- Correlating clinical features with the causes and mechanisms of disease
- Defining reversible and irreversible injury
- Identifying the causes of cell injury
- Describing the mechanisms of reversible and irreversible injury
- Defining cellular swelling and fatty change
- Defining necrosis and apoptosis

### Goal:

The goal of teaching pathology to the undergraduate students is to provide comprehensive knowledge of the cause and mechanism of disease, in order to enable them to achieve complete understanding of the clinical manifestation and natural history of the disease.

### Departmental Objectives

After completion of pathology course, undergraduate medical students will be able to:

- Explain basic mechanism of diseases: Etiology, pathogenesis, morphological changes with emphasis on common diseases prevalent in .
- Co-relate between clinical findings and pathological changes.
- Chalk out simple investigation plan for diagnosis and follow up of diseases.
- Interpret laboratory results and understand their implication.
- Demonstrate knowledge about the use of Histopathology, FNAC, Cytological examination, Pap smear, Frozen section and Immuno-histochemistry
- Develop attitude for further learning of the subject.
- Develop skills to perform
  - TC, DC, Eosinophil count, estimation of Hb% and ESR
  - Semen analysis

- Routine examination of Urine
- Microscopic examination of body fluids
- CSF examination
- Writing a requisition form for histo-pathological and cytological examination.

## **SYSTEMIC PATHOLOGY SPECIFIC LEARNING OBJECTIVES**

### **A. Cognitive Domain**

1. Diagnose routine clinical problems on the basis of histopathology (Surgical Pathology) and cytopathology specimens, blood and bone marrow examination and various tests of Laboratory Medicine (Clinical Pathology, Clinical Biochemistry) as well as Blood Banking (Transfusion Medicine).
2. Interpret and correlate clinical and laboratory data so that clinical manifestations of diseases can be explained.
3. Should be able to teach Pathology to medical and paramedical staff including laboratory personnel.
4. Make and record observations systematically and maintain accurate records of tests and their results for reasonable periods of time.
5. Identify problems in the laboratory, offer solutions thereof and maintain a high order of quality control.
6. Capable of safe and effective disposal of laboratory waste.

### **B. Affective Domain**

1. Should be able to function as a part of a team, develop an attitude of cooperation with colleagues, and interact with the patient and the clinician or other colleagues to provide the best possible diagnosis or opinion.
2. Always adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.
3. Develop communication skills to word reports and professional opinion as well as to interact with patients, relatives, peers and paramedical staff, and for effective teaching.

### **C. Psychomotor Domain**

1. Able to perform most of the routine tests in a Pathology Laboratory including grossing of simple specimens, processing, cutting of paraffin and frozen sections, making smears, and staining.
2. Able to collect specimens by routinely performing non-invasive out-patient procedures such as venipuncture, finger-prick, fine needle aspiration of superficial lumps and provide appropriate help to colleagues performing an invasive procedure such as a biopsy or an imaging guided biopsy.
3. Should be familiar with the function, handling and routine care of equipment in the laboratory

## **SUBJECT SPECIFIC COMPETENCIES**

A medical graduate (student) upon successfully qualifying in special pathology) examination i.e., 4<sup>th</sup> professional MBBS examination should have acquired the following broad theoretical competencies and should be:

### **A. Cognitive Domain**

1. Capable of offering a highquality diagnostic opinion in a given clinical situation with an appropriate and relevant sample of tissue, blood, body fluid, etc. for the purpose of diagnosis and overall wellbeing of the ill.
2. Able to teach and share his knowledge and competence with others. The student should be imparted training in teaching methods in the subject which may enable the student to take up teaching assignments in medical colleges/Institutes.
3. Capable of pursuing clinical and laboratory based research. He/she should be introduced to basic research methodology so that he/she can conduct fundamental and applied research.

### **B. Affective domain**

1. The student will show integrity, accountability, respect, compassion and dedicated patient care.
2. The student will demonstrate a commitment to excellence and continuous professional development.
3. The student should demonstrate a commitment to ethical principles relating to providing patient care, confidentiality of patient information and informed consent.
4. The student should show sensitivity and responsiveness to patients' culture, age, gender and disabilities.

### **C. Psychomotor domain**

At the end of the course, the student should have acquired skills, as described below:

#### **General**

- Principles of sample collection for Hematology and Clinical Pathology
- Histopathology and cytology specimens: collection & evaluation
- Urine analysis: analysis and interpretation of results
- Stool examination: analysis and interpretation of results
- Pregnancy tests: analysis and interpretation of results
- Semen analysis: Collection, analysis and interpretation of results
- Microbiological tests: methods of collection, analysis and interpretation of results
- Biochemical tests: methods of collection, analysis and interpretation of results
- Sample collection for blood banking
- Waste disposal and universal precautions

#### **Cytology**

1. Fine needle aspiration cytology - Staining and interpretation
  2. Cytology of body fluids including Pap smear - Staining and Interpretation
- Histopathology



1. Histopathologic techniques including section cutting.
2. Haematoxylin and Eosin stain and necessary special stains like AFB and iron stain etc.

## **Hematology**

1. Anticoagulants.
2. Preparation of Romanowsky's stain and reagents for blood counts.
3. Hands on experience in different methods of Haemoglobin estimation, RBC, WBC, Platelets and Reticulocyte counts, AEC, PCV, ESR and absolute indices and Coagulation tests.
4. Preparation and interpretation of peripheral smear and bone marrow.
5. Comprehensive work up of Haemolytic Anaemias.
6. Cytochemistry - Peroxidase/Sudan Black B, PAS, LAP, NSE and Perl's stain
7. Quality control and use of automated cell counters.
8. Cleaning of Glassware

## **Blood Bank**

1. Blood grouping and typing
2. Cross matching
3. Coombs' test
4. Donor screening and blood collection
5. Testing for STD, HIV, Hepatitis B and C.
6. Rh antibody titration
7. Cold agglutinin titre
8. Quality control

## **Clinical Biochemistry**

1. Basic Biochemistry applied to biochemical investigations:  
Appropriate use of Photocolorimeter, Spectrophotometer, pH meter, Flame photometer, Semi-Autoanalyser and Autoanalyser, Electrophoresis apparatus.
2. Perform biochemical investigations like blood sugar, urea, creatinine, proteins, bilirubin, SGOT, SGPT, Alkaline Phosphatase etc.

## **Surgical Pathology: Skills**

- Given the clinical and operative data, the student should be able to identify, and systematically and accurately describe the chief gross anatomic alterations in the surgically removed specimens.
- A student should be able to demonstrate ability to perform a systematic gross examination of the tissues including the taking of appropriate tissue sections.
- Process a tissue, make a paraffin block and cut sections of good quality on a rotary microtome.
- Stain paraffin sections with at least the following:
  - (i) Haematoxylin and eosin
  - (ii) Iron stain
  - (iii) Acid fast stains

### **Demonstrate understanding of the principles of:**

- (i) Fixation of tissues
- (ii) Processing of tissues for section cutting
- (iii) Section cutting and maintenance of related equipment.

## **Cytopathology: Skills**

- Independently prepare and stain with Geimsa and Pap stains for cytopathologic examination.

## **Haematology: Skills**

- Correctly and independently perform the following special tests, in addition to doing the routine blood counts:
  - (i) Haemogram including Reticulocyte and Platelet counts.
  - (ii) Bone marrow staining including stain for iron.
  - (iii) Blood smear staining.
  - (iv) Hemolytic anemia profile including High Performance Liquid Chromatography, Hb electrophoresis etc.
  - (v) Coagulation profile including PT, APTT (activated partial thromboplastin time), FDP.

Describe prominent morphologic findings in the peripheral smears.

## Laboratory Medicine: Skills

- Plan a strategy of laboratory investigation of a given case, given the relevant clinical history and physical findings in a logical sequence, with a rational explanation of each step; be able to correctly interpret the laboratory data of such studies, and discuss their significance with a view to arrive at a diagnosis.
- Demonstrate familiarity with and successfully perform
  - i) routine urinalysis including physical, chemical and microscopic, examination of the sediment.
  - ii) macroscopic and microscopic examination of faeces and identify the ova and cysts of common parasites.
  - iii) a complete examination; physical, chemical and cell content of Cerebrospinal Fluid (C.S.F), pleural and peritoneal fluids.
  - iv) Semen analysis.
  - v) Examination of peripheral blood for commonly occurring parasites.
- Independently and correctly perform at least the following quantitative estimations by manual techniques and/or automated techniques.
  - (i) Blood urea
  - (ii) Blood sugar
  - (iii) Serum Proteins (total and fractional)
  - (iv) Serum Bilirubin (total and fractional)
- Demonstrate familiarity with the following quantitative estimations of blood/serum by Automated Techniques:
  - (i) Serum cholesterol
  - (ii) Uric acid
  - (iii) Serum Transaminases (ALT and AST/SGOT and SGPT), etc.

## Transfusion Medicine: Skills

The student should be able to correctly and independently perform the following:

- Selection and bleeding of donors.
- ABO and Rh grouping.
- Demonstrate familiarity with principle and procedures involved in testing of blood for presence of:
  - (i) HBV (Hepatitis B Virus Markers).
  - (ii) HCV (Hepatitis C Virus Markers)
  - (iii) HIV (Human Immunodeficiency Virus Testing) (iv) VDRL
  - (v) Malaria
  - (vi) Coomb's test

## Blood vessels

### Learning Objectives

Student will be able to:

- define arteriosclerosis and atherosclerosis
- list the risk factors and discuss the pathogenesis of atherosclerosis
- list the sites of involvement of atherosclerosis.
- describe the complications of atherosclerosis.

### Integrated learning objectives

1. Blood vessels Core:

- Name of different vasculitis, and vascular tumor, Core:
- Define arteriosclerosis and atherosclerosis, aneurysm and dissection,
- Risk factors of atherosclerosis, site of involvement and complications
- Lipid profile

Additional: Pathogenesis of atherosclerosis.

- **Analytical skills**

Develop analytical and methodological skills to relate evidence-based medicine principles to clinical situations about the vascular diseases with differential diagnosis

- **Communication skills**

Develop communication skills to communicate with patients about diagnoses, prognosis, and therapy

- **Critical analysis**

Develop the ability to critically analyze patient information to place it in a differential diagnosis of various diseases of vascular origin

- **Scientific literature**

Develop the ability to study pathological pictures by consulting scientific literature

## Heart

### OBJECTIVES

- define ischemic heart disease and describe the types.
- describe the pathogenesis of ischaemic heart disease.
- describe the morphological features of myocardial infarction.
- describe the haematological and biochemical changes in myocardial infarction.
- define rheumatic heart disease.
- describe the pathogenesis and morphology of rheumatic heart disease.
- define infective endocarditis.
- define the etiology and types of infective endocarditis.
- define hypertension and list the causes of essential and secondary hypertension.
- discuss the pathogenesis and describe the vascular changes in hypertension.

## Integrated learning objectives

### Student Must know

- Ischemic heart disease and myocardial infarction: pathogenesis, morphological features and biochemical indicators, complications
- Rheumatic fever: pathogenesis, morphology and complications
- Infective endocarditis: pathogenesis, morphology and complications
- Causes of myocarditis, pericarditis

Additional:

Names of congenital heart disease.

- **Analytical skills**

Develop analytical and methodological skills to relate evidence-based medicine principles to clinical situations heart disease

- **Communication skills**

Develop communication skills to communicate with patients about diagnoses, prognosis, and therapy

- **Critical analysis**

Develop the ability to critically analyze patient information to place it in a differential diagnosis of various cardiac diseases

- **Scientific literature**

Develop the ability to study pathological pictures by consulting scientific literature

## Lymphoreticular System

### Learning Objectives

#### Student will be able to:

- list the causes of lymphadenitis and describe the morphological features.
- classify Hodgkin and non-Hodgkin lymphomas.
- describe the morphological features of Hodgkin's and non-Hodgkin lymphoma and correlate with clinical course.
- describe main findings in a peripheral blood film.
- state the indications of bone marrow examination and describe normal bone marrow findings.
- state normal haemoglobin level with age & sex variations and red cell indices (MCV, MCH, MCHC)
- define and classify anaemia based on morphology and aetiology
  - list the causes of iron deficiency anaemia and state the laboratory investigations.
  - list the causes of megaloblastic anaemia and other conditions that leads to macrocytosis.
  - describe laboratory investigations for megaloblastic anaemia
- classify haemolytic anaemia.
- describe the findings on peripheral blood film and list further investigations to identify its aetiology.
- list different types of haemoglobinopathies and thalassaemia

- describe the pathogenesis of sickle cell anaemia and thalassaemia.
- list the causes of pancytopenia and describe peripheral blood film findings and bone marrow findings of aplastic anaemia.
- list the causes of haemorrhagic disorders and interpret its screening lists.
- discuss haemophilia and ITP
- define leukaemia, classify leukaemia and describe peripheral blood film and bone marrow findings in different leukaemias.
- explain leukaemoid reactions.
- define polycythemia and classify it.
- define paraproteinaemia and describe the laboratory investigations of multiple myeloma

## Integrated learning objectives

### Lymphoreticular Core:

- Causes of lymphadenopathy, Outline of classification of NHL
- Hodgkin and non-Hodgkin lymphomas: Classification, morphology

Additional:

- Immune diagnosis of Hodgkin lymphoma
- Burkitt lymphoma: morphology
- Follicular lymphoma: morphology
- Causes of splenomegaly.
- **Analytical skills**  
Develop analytical and methodological skills to relate evidence-based medicine principles to clinical situations
- **Communication skills**  
Develop communication skills to communicate with patients about diagnoses, prognosis, and therapy
- **Critical analysis**  
Develop the ability to critically analyze patient information to place it in a differential diagnosis
- **Scientific literature**  
Develop the ability to study pathological pictures by consulting scientific literature

### Hematopathology Core:

#### Learning objectives

#### Student must be able to know:-

- Hematopoiesis, different stages of RBC and WBC
- Causes of Leukocytosis, leucopenia, eosinophilia, monocytosis and thrombocytopenia
- Anemia: morphological and etiological classification
- Lab. diagnosis of nutritional anemia, iron deficiency anemia, megaloblastic anemia, pernicious anemia
- Hemolytic anemia: classification
- Thalassemia and sickle cell anemia: lab diagnosis

- Aplastic anemia: etiology and lab diagnosis
- PNH, AIHA, Coombs test
- Classification of bleeding disorder
- ITP: causes and lab diagnosis
- Hemophilia: causes and lab. investigation
- Leukemia: classification and lab.diagnosis
- Multiple myeloma: lab. Diagnosis

**Additional:**

- Constituents of blood and bone marrow Polycythemia Blood Group and blood transfusion Core:
  - Blood transfusion: grouping and cross matching, transfusion reaction, blood transmissible disease, Rh incompatibility, Blood products
- **Analytical skills**  
Develop analytical and methodological skills to relate evidence-based medicine principles to clinical situations haematological lesions.
- **Communication skills**  
Develop communication skills to communicate with patients about diagnoses, prognosis, and therapy of blood borne diseases
- **Critical analysis**  
Develop the ability to critically analyze patient information to place it in a differential diagnosis
- **Scientific literature**  
Develop the ability to study pathological pictures by consulting scientific literature about the hematological diseases.



# Respiratory System

## Learning Objectives

### Student will be able to:

- mention the common inflammatory lung diseases.
- define and describe the different types of pneumonia, tuberculosis and lung abscess.
- list the causes and describe the pathogenesis of pneumonia, tuberculosis and lung abscess.
- describe the morphology and enlist the complication of pneumonia, tuberculosis and lung abscess.
- appreciate the clinical course and correlate it with the morphological features.
- define the different types of chronic obstructive airway diseases.
- describe the pathogenesis, morphological and clinical features of COPD.
- classify lung tumours and describe aetiology and pathogenesis.
- describe the morphological features and clinical course of common lung tumour.
- list the causes of pleuritis and describe the various types of pleural effusion.

## Integrated learning objectives

- Cause of Pulmonary oedema
- Define: ARDS, obstructive pulmonary disease and pneumoconiosis
- Morphology of obstructive airway disease
- Pathogenesis and morphology of Pneumonia
  - Lung abscess: pathogenesis and morphology
- Pulmonary tuberculosis: pathogenesis, morphology, fate
- Cause of pleural effusion
  - Classification of lung tumor Additional:
- Congenital anomalies
- Pathogenesis of obstructive airway disease, name of the granulomatous lesion of lung
  - Defense mechanism of lung
  - Definition of restrictive disease
  - Morphology and clinical effect of lung tumor
- **Analytical skills**  
Develop analytical and methodological skills to relate evidence-based medicine principles to clinical situations of pulmonary diseases
- **Communication skills**  
Develop communication skills to communicate with patients about diagnoses, prognosis, and therapy of pulmonary diseases
- **Critical analysis**  
Develop the ability to critically analyze patient information to place it in a differential diagnosis respiratory diseases.

- **Scientific literature**

Develop the ability to study pathological pictures by consulting scientific literature

# Gastrointestinal Tract (GIT)

## Learning Objectives

### Student will be able to:

- define and list the causes of oral ulcer and leucoplakia
- list the precancerous, benign and malignant tumour of the oral cavity and identify the predisposing factors.
- classify histologically benign and malignant tumours of salivary glands.
- list the tumours of oesophagus and describe their morphological features.
- list the causes of acute and chronic gastritis.
- define peptic ulcer and describe its pathogenesis, morphological features and clinical course.
- list the various types of benign and malignant tumours of stomach and identify the predisposing factors for gastric carcinoma.
- list the causes of acute appendicitis describe the morphological features and correlate with its clinical course.
- name ulceroinflammatory diseases involving intestine.
- differentiate ulcerative colitis from Crohn's disease.
- list the different types of polyps, benign and malignant tumour of intestine.

## Integrated learning objectives

- Leukoplakia, name of the carcinoma of oral cavity
- Salivary gland tumor, morphology of pleomorphic adenoma
- Oesophagus: causes of esophagitis, Barretts oesophagus
- Congenital anomalies of GIT – morphology of Hirschsprung disease and hypertrophic pyloric stenosis
- PU: pathogenesis, morphology, complications
- Inflammatory bowel syndrome, difference between Crohn's and ulcerative colitis
- Tumors of stomach
- Gastric cancer: morphology and etiopathogenesis
- Acute appendicitis Morphology
- Ca colon: morphology and etiopathogenesis
- Name of the different polyp of GIT Additional:
- Pathogenesis of IBD
- Diverticulosis
- Infarction
- Necrotizing enterocolitis
- **Analytical skills**  
Develop analytical and methodological skills to relate evidence-based medicine principles to clinical situations
- **Communication skills**  
Develop communication skills to communicate with patients about diagnoses, prognosis, and therapy of diseases of GIT
- **Critical analysis**

Develop the ability to critically analyze patient information to place it in a differential diagnosis

- **Scientific literature**

Develop the ability to study pathological pictures by consulting scientific literature about the diseases of GIT

# Hepatobiliary system

## Learning Objectives

### Student will be able to:

- list the causes of hepatitis.
- describe the various types of viral hepatitis and explain their modes of transmission and state their clinical outcome.
- list the causes and describe the morphological features of liver abscess.
- list the causes, pathogenesis and complications of cirrhosis.
- describe the morphology of cirrhosis and correlate it with clinical features.
- list the different types of benign and malignant tumours of liver and describe briefly the epidemiology.
- identify the risk factors, describe the pathogenesis, morphological features and of cholelithiasis.
- list the tumours of gall bladder.

## Integrated learning objectives

- Liver function tests & their interpretation
- Jaundice: types, differences
- Hepatitis: cause, morphology
- Cirrhosis: etiology, pathogenesis, morphology and complication
- Portal hypertension and hepatic failure: feature
- Liver abscess: morphological features
- Tumor of liver: types
- Cholecystitis and cholelithiasis: etiology, pathogenesis,

### Additional:

- Neonatal jaundice
- Diseases of exocrine pancreas
- Hepatic Cysts.

- **Analytical skills**

Develop analytical and methodological skills to relate evidence-based medicine principles to clinical situations occurring in hepatobiliary system

- **Communication skills**

Develop communication skills to communicate with patients about diagnoses, prognosis, and therapy of hepatobiliary system

- **Critical analysis**

Develop the ability to critically analyze patient information to place it in a differential diagnosis

- **Scientific literature**

Develop the ability to study pathological pictures by consulting scientific literature

# Renal system

## Learning Objectives

### Student will be able to:

- classify glomerular diseases.
- list clinical manifestations of renal diseases. describe briefly aetiology, pathogenesis and clinical course of acute and chronic glomerulonephritis.
- define nephrotic syndrome, list its causes and describe the pathophysiology.
- define pyelonephritis, list the causes, describe the morphological features, and clinical course of acute and chronic pyelonephritis.
- define and list the causes of acute renal failure and discuss briefly its clinical course.
- list the different types of renal tumours and discuss briefly the morphological features.
- discuss briefly uropathy and renal calculi.
- describe different types of cystitis.

## Integrated learning objectives

- list the different types of urinary bladder tumour, describe its pathogenesis and morphological features. Renal system Core:
  - Classification of renal disease and their clinical manifestation
  - Renal function test including examination of urine
  - Immune basis of glomerulonephritis
  - Classification of glomerulonephritis
  - Acute post streptococcal glomerulonephritis: etiopathogenesis, morphology, complications
  - Nephrotic syndrome: definition, causes
  - Pyelonephritis: etiopathogenesis, morphology and complications
  - Renal tumour: different types
  - Renal cell carcinoma
  - Urinary bladder tumor: different types

### Additional:

- Congenital disease of kidney
- Polycystic kidney disease
- Urolithiasis: Types
- Morphology of renal cell carcinoma
- Morphology of different types of cystitis.
- **Analytical skills**  
Develop analytical and methodological skills to relate evidence-based medicine principles to clinical situations of renal diseases
- **Communication skills**  
Develop communication skills to communicate with patients about diagnoses, prognosis, and therapy diseases of kidney
- **Critical analysis**

Develop the ability to critically analyze patient information to place it in a differential diagnosis

- **Scientific literature**

Develop the ability to study pathological pictures by consulting scientific literature

# Male genital system

## Learning Objectives

### Student will be able to:

- describe types and causes of prostatitis.
- outline epidemiology, pathogenesis and morphological features of nodular hyperplasia.
- describe types of pathology and methods of diagnosis of prostatic carcinoma
- list the causes of orchitis and epididymitis.
- classify testicular tumours and describe their morphological features and prognosis.

## Integrated learning objectives

### Male genital system

- Prostate: causes of prostatitis
- Aetiopathogenesis and morphology of nodular hyperplasia
- Role of PSA in prostatic carcinoma
- Testis • Undescended testis: importance
- Inflammatory diseases of testis
- Testicular tumor: classification and clinical outcome
- Morphology of seminoma, yolk sac tumor and embryonal carcinoma
- Tumour markers for testicular tumors
- Semen analysis
- **Analytical skills**  
Develop analytical and methodological skills to relate evidence-based medicine principles to clinical situations
- **Communication skills**  
Develop communication skills to communicate with patients about diagnoses, prognosis, and therapy
- **Critical analysis**  
Develop the ability to critically analyze patient information to place it in a differential diagnosis
- **Scientific literature**  
Develop the ability to study pathological pictures by consulting scientific literature



# Female genital system

## Learning Objectives

Student will be able to:

- list the causes of cervicitis and discuss briefly non-neoplastic lesions of cervix.
- identify the risk factor for cervical carcinoma, discuss briefly the precancerous, and cancerous lesions of cervix and methods of diagnosis.
- list the causes of endometriosis and discuss briefly neoplastic and nonneoplastic lesions of uterus.
- list the non-neoplastic cysts of ovary.
- describe ovarian tumours and describe briefly morphological features and clinical course of common tumour.
- list the gestational trophoblastic tumours, name the type of hydatidiform mole, describe the morphological features and methods of diagnosis of hydatidiform mole.
- identify the predisposing factors and discuss the morphological changes and prognosis of Choriocarcinoma.

## Female genital system Core:

- Causes of cervicitis, salpingitis
- Risk factors of cervical cancer
- Role of human papilloma virus –screening for cervical cancer
- Different histological types of cervical cancer
- Endometriosis: possible mechanism, sites and effect of endometriosis
- Common tumor of the corpus of uterus: morphology of leiomyoma,
- Endometrial hyperplasia: different types, their morphology and importance
- Classification of ovarian tumor and role of tumor marker
- Morphology of teratoma, dysgerminoma, choriocarcinoma and the different surface epithelial tumor, Kronenberg tumor
- Hydatidiform mole and choriocarcinoma predisposing factors, morphology and diagnosis
- Pregnancy test
- **Analytical skills**  
Develop analytical and methodological skills to relate evidence-based medicine principles to clinical situations occurring in female genital system
- **Communication skills**  
Develop communication skills to communicate with patients about diagnoses, prognosis, and therapy of diseases of female genital system
- **Critical analysis**  
Develop the ability to critically analyze patient information to place it in a differential diagnosis
- **Scientific literature**  
Develop the ability to study pathological pictures by consulting scientific literature

## Breast

### LEARNING OBJECTIVES: -

Students will be able to:

- list the inflammatory diseases of breast.
- describe the epidemiology, types and biological importance of fibrocystic disease.
- list the benign and malignant tumours of breast, classify malignant breast tumour and discuss the risk factors.

### Integrated learning objectives:

- Name of the different inflammatory diseases of breast, cause of lump of breast
- Fibrocystic disease: different types and their importance
- Classification of breast tumor
- Breast carcinoma: risk factors and the prognostic factors
- **Analytical skills**  
Develop analytical and methodological skills to relate evidence-based medicine principles to clinical situations
- **Communication skills**  
Develop communication skills to communicate with patients about diagnoses, prognosis, and therapy
- **Critical analysis**  
Develop the ability to critically analyze patient information to place it in a differential diagnosis
- **Scientific literature**  
Develop the ability to study pathological pictures by consulting scientific literature

## Endocrine system

### LEARNING OBJECTIVES: -

#### Thyroid and endocrine pancreas diabetes mellitus

##### Students will be able to:

- list the causes of thyroiditis and describe briefly Hashimoto's thyroiditis.
- discuss pathogenesis and clinical course of diffuse and multinodular goitre.
- describe the morphological features of goitre.
- list the benign and malignant tumors of thyroid.
- describe the morphological features of papillary, follicular carcinoma and the prognosis of thyroid tumors.
- types of diabetes mellitus, pathogenesis, diagnosis and complications

##### Endocrine system—thyroid and endocrine pancreas diabetes mellitus Core:

- Causes of goiter, name of the different auto immune disease of thyroid
  - Thyroiditis: types and morphology
  - Different types of thyroid tumor, their morphology and prognosis
  - Diabetes mellitus: different types, pathogenesis, and complications
  - Estimation of blood sugar
  - Glucose tolerance test and its interpretation
- Additional: Mechanism of ketoacidosis.

- **Analytical skills**

Develop analytical and methodological skills to relate evidence-based medicine principles to clinical situations

- **Communication skills**

Develop communication skills to communicate with patients about diagnoses, prognosis, and therapy

- **Critical analysis**

Develop the ability to critically analyze patient information to place it in a differential diagnosis

- **Scientific literature**

Develop the ability to study pathological pictures by consulting scientific literature

# MUSCULOKELETAL SYSTEM

## LEARNING OBJECTIVES

Student will be able to:

- classify the tumors of soft tissue
- classify tumors of bone
- describe causes & pathogenesis of osteomyelitis
- list the diseases of skeletal muscle

Bone, soft tissue, Core:

- Soft tissue tumor: names
- Bone tumor:  
names and their histogenesis
- Osteomyelitis: aetiopathogenesis,  
morphology, giant cell tumor of bone,  
Ewing's sarcoma,

Learning objectives for systemic pathology courses include:

- **Analytical skills**  
Develop analytical and methodological skills to relate evidence-based medicine principles to clinical situations in orthopedics lesion and emergencies
- **Communication skills**  
Develop communication skills to communicate with patients about diagnoses, prognosis, and therapy of diseases concerning bone, joints and muscles
- **Critical analysis**  
Develop the ability to critically analyze patient information to place it in a differential diagnosis of diseases of bone, joints and muscle
- **Scientific literature**  
Develop the ability to study pathological pictures by consulting scientific literature and latest research on diseases of bone, joints and muscle.

# CNS

## LEARNING OBJECTIVES

### Student will be able to:

- list the course of acute and chronic meningitis and encephalitis and describe CSF findings in different types of meningitis.
- list the benign and malignant tumors of central nervous system and peripheral nerve sheath

### CNS Core:

- Indications of Examination of CSF and the findings in different types of meningitis
  - Name of the CNS tumor
- Additional: • Changes in cerebral infarction

- **Analytical skills**

Develop analytical and methodological skills to relate evidence-based medicine principles to clinical situations in orthopedics lesion and emergencies

- **Communication skills**

Develop communication skills to communicate with patients about diagnoses, prognosis, and therapy of diseases concern with bone, joints and muscles

- **Critical analysis**

Develop the ability to critically analyze patient information to place it in a differential diagnosis of diseases of bone, joints and muscle

- **Scientific literature**

Develop the ability to study pathological pictures by consulting scientific literature and latest research on diseases of bone, joints and muscle.

# THE TERMINAL OBJECTIVES IN CHEMICAL / CLINICAL PATHOLOGY

## **Knowledge Objectives**

1. Describe the different panels of laboratory tests to diagnose and monitor different diseases.
2. Explain the pathogenesis and morphology of common diseases which can be diagnosed by lab tests.
3. Identify and describe common tests panels of different diseases.
4. Discuss the clinical presentation and its correlation with lab reports.

## **Skills Objectives**

1. Identify different test panels for specific diseases like viral hepatitis, cardiac biomarkers, RFT etc.
2. Assess and interpret lab reports common diseases.
3. Develop diagnostic plans for common presentations of common diseases.
4. Interpret lab investigation reports for common diseases.
5. Develop monitoring plans for complications of common diseases like diabetes mellitus, hepatitis malaria, dengue fever etc.

## **Attitude Objectives**

1. Demonstrate empathy and understanding when interacting with patients undergoing lab tests.
2. Show appreciation for the importance of preventive care through lab tests.
3. Educate patients to control common diseases and how to prevent complications through lab tests.
4. Display a commitment to staying current with the latest evidence-based practices in medicine with the help of chemical pathology lab tests.
5. Exhibit effective communication skills when discussing lab tests and their interpretation with patients and healthcare teams.

## **Application Objectives**

1. Apply knowledge of chemical pathology to diagnose and manage common diseases like hepatitis, skin and soft tissue infections, pneumonia and enteritis etc.
2. Integrate evidence-based practices into the diagnosis and treatment of common diseases.
3. Develop and implement individualized diagnostic and preventive plans that take into account the unique needs and circumstances of each patient.
4. Evaluate the prognosis by lab investigations and suggest adjustments in treatment as needed to optimize patient care.

# SKIN

## LEARNING OBJECTIVES

### Student will be able to:

- define the terms used in dermatology
- list common papulo-squamous and visicobullous diseases of skin.
- list the benign, premalignant and malignant epidermal tumors
- describe briefly the morphological features of squamous cell carcinoma, basal cell carcinoma, malignant melanoma

### Integrated learning objectives

- Terms used in dermatology
- Cause of bullous lesions
- Name of premalignant and malignant lesions of skin
- Basal cell carcinoma, malignant melanoma and squamous cell carcinoma: morphology.
- **Analytical skills**  
Develop analytical and methodological skills to relate evidence-based medicine principles to clinical situations
- **Communication skills**  
Develop communication skills to communicate with patients about diagnoses, prognosis, and therapy
- **Critical analysis**  
Develop the ability to critically analyze patient information to place it in a differential diagnosis
- **Scientific literature**  
Develop the ability to study pathological pictures by consulting scientific literature