Department of Pathology
Student's Study Guide
2nd YEAR BDS 2025

TABLE OF CONTENTS

MISSION OF DEPARTMENT OF PATHOLOGY

Mission

Our mission is to incorporate effective teaching and learning methodologies that equips students with fully integrated knowledge of latest updates in the field of pathology so that they are able to comprehend the subject of pathology and can apply its concepts in their day to day clinical dentistry

Learning Outcomes of Course of Pathology

After completing the course of Pathology, the student of 2nd Year BDS will be able to:

- Illustrate knowledge about the basic concepts of nature of disease and translate that knowledge in order to improve diagnostic and clinical applications
- Apply the knowledge of pathology in improving the diagnostics in dentistry

FACULTY OF DEPARTMENT OF PATHOLOGY

Head of Department:

Professor Dr. Tariq Sarfraz

BDS Coordinator:

Professor Dr Fatima Kaleem

Faculty FUMC	Faculty FFH
Prof Dr. Lubna Zafar	Prof Dr Asif Nawaz
Prof Dr Tehmina Munir	Prof Dr. Shahid Ahmed Abbasi
Assoc. Prof. Dr. M Jawwad Anis Khan	Assoc. Prof Dr. Madeeha Rehan
Asst. Prof. Dr. Saba Aneeqa	Assoc. Prof Dr. Sehar Khaliq
Demo Dr. Abida Aslam	Asst. Prof Dr. Aatika Khalid
Demo Dr. Ghazala Rustum	Asst. Prof Dr. Nadia Arif
Demo Dr. Malghalara Khattak	Asst. Prof Dr. Mehnaz Omer Arshad
Demo Dr. Amna Waheed	

Demo Dr. Rubina Riaz

Demo Dr. Zainab Taj

Demo Dr. Saad Ahmed

Teaching and Learning Methodologies

Teaching and learning methods are primarily focused more on promoting active learning through active participation of the learner. Actively learning students take charge of their own learning, actively seeking guidance and performance feedback from tutors, and routinely conducting self-assessment of their own learning needs.

Teaching and Learning Modalities

1. Large Group Interactive Sessions (LGIS)
2. Small Group Interactive Sessions (SGIS)
3. Self-Directed Learning (SDL)

Following teaching modalities may be used for small group teaching:

1. Video demonstrations
2. Students' presentations
3. Discussions
4. Peer learning
5. Projects/ Assignments

Learning Resources:

Robbins and Cotran Review of Pathology by Klatt and Kumar

LEARNING OBJECTIVES OF COURSE OF GENERAL PATHOLOGY

Sr. No	Learning objectives	MIT	Assessment	
	At the end of the session, the student will be able to:		Summative	Formative
1	• Define Adaptation • Explain the mechanisms and morphology of atrophy, hypertrophy, hyperplasia and metaplasia. • Identify morphology of atrophy, hypertrophy, hyperplasia and metaplasia.	LGIS(3) SGIS Practicals(3) Tutorials(1)	MCQ, SEQ, OSPE	Tutorial and practical feedback
2	Recall the Causes, mechanism, morphology and clinical correlation of reversible and irreversible cell injury.	LGIS(3) SGIS(1) Practicals(2) Tutorials1	MCQ, SEQ, OSPE	Tutorial and practical feedback
3	• Define apoptosis • Explain the mechanisms, outcomes and situations associated with and morphology of apoptosis • Identify the microscopic morphology of apoptosis	LGIS(3) SGIS(1) Practicals(1) Tutorials(1)	MCQ, SEQ, OSPE	Tutorial and practical feedback
4	• Define intracellular accumulations • Explain the mechanisms, outcomes and morphology of fatty change & protein accumulations • Identify microscopic picture of fatty change	LGIS(2) SGIS Practicals Tutorials(1)	MCQ, SEQ, OSPE	Tutorial and practical feedback
5	• Define Pathological Calcifications • Explain the types, mechanism, outcomes and morphology of pathologic calcification • Identify microscopic picture of calcification in various tissues	LGIS(2) SGIS Practicals(1) Tutorials(2)	MCQ, SEQ, OSPE	Tutorial and practical feedback
6	• Define acute inflammation, • explain events of acute inflammation • Identify inflammation	LGIS(2) SGIS Practicals(1) Tutorials(2)	MCQ, SEQ, OSPE	Tutorial and practical feedback
7	• Classify chemical mediators • Explain effects of main types of mediators	LGIS(1) SGIS	MCQ	Tutorial
8	• Explain Changes in acute inflammation with significance of each change • Explain the morphological patterns of acute inflammation • Identify morphological patterns of acute inflammation	SGIS(2) Practicals(1)	MCQ, SEQ, OSPE	Tutorial

9	Define chronic inflammation ,types, mechanism, outcomes	LGIS(2) SGIS Practical(2)	MCQ, SEQ, OSPE	Tutorial and

	Explain morphology of chronic inflammation Identify chronic inflammation in tisuues	TutoriaL(1)		practical feedback
10	Explain the systemic Effects of inflammation on the body as a whole	SGIS(1)	MCQ, SEQ, OSPE	Tutorial
11	Mechanism of tissue and organ regeneration Describe healing by repair/ scar formation Identify tissue lesions	LGIS(2) SGIS Practical(2) Tutorial(1)	MCQ, SEQ, OSPE	Tutorial and practical feedback
12	Describe pathological aspects of repair Discuss factors modifying process of repair	LGIS(2) SGIS(1)	MCQ, SEQ, OSPE	Tutorial
13	Classify various types of edema Understand pathogenesis & morphology of edema Describe the etiopathogenesis and morphology of thrombosis	LGIS,(4) SGIS, Practical(2)	MCQ, SEQ, OSPE	Tutorial and practical feedback
14	Describe the etiopathogenesis and morphology of infarction Describe the etiopathogenesis and morphology of shock	LGIS,(3) SGIS,(1) Practical(1)	MCQ,S EQ, OSPE	Tutorial and practical feedback
15	Describe genetic disease classification Explain different mutations	LGIS(3) SGIS	MCQ, SEQ	Tutorial
16	Describe Mendelian disorders	SGIS(2) Tutorial(2)	MCQ, SEQ	Tutorial
17	Explain cytogenetic Describe different chromosomal disorders Describe sex chromosomal disorders Understand sexual ambiguity Explain chromosomal instability syndromes	LGIS(2) SGIS Tutorial(2)	MCQ, SEQ	Tutorial
18	Explain prenatal diagnosis Describe different techniques in genetics	LGIS(2) SGIS	MCQ	Tutorial
19	Explain the basis of immunological tolerance Describe mechanisms of autoimmunity. Describe general patterns of autoimmune diseases. Describe changes of autoimmune diseases, like SLE	LGIS(3) SGIS(1) Tutorial(2)	MCQ, SEQ, OSPE	Tutorial

20	Explain mechanisms of tissue transplant rejection. Describe morphological changes in kidney rejection. Explain graft versus host disease. Describe different methods of reducing rejection of transplanted tissues. Identify tissue lesions	LGIS(2) SGIS Tutorial(1) Practical(2)	MCQ, SEQ, OSPE	Tutorial and practical feedback

21	Define Amyloidosis. Describe types/chemical and physical nature of Amyloid. Describe pathogenesis of Amyloidosis. Identify tissue lesions		MCQ, SEQ, OSPE	Tutorial and practical feedback
22	Describe nomenclature & characteristics of Neoplasms	LGIS (3) SGIS	MCQ, SEQ	Tutorial
23	Discuss epidemiology of cancer	SGIS(1)	MCQ	Tutorial
24	Discuss molecular basis of cancer / malignant transformation Discuss insensitivity to growth inhibition & escape from senescence: tumor suppressor genes Discuss genomic instability Discuss stromal microenvironment & carcinogenesis Discuss metabolic alterations Discuss dysregulation of cancer associated genes Discuss molecular basis of multistep carcinogenesis	LGIS(3) SGIS(1) TutoriaL(1)	MCQ, SEQ	Tutorial
25	Discuss carcinogenic agents	SGIS(1)	MCQ, SEQ	Tutorial
26	Discuss host defenses	SGIS(1)	MCQ, SEQ	Tutorial
27	Diagnose cancer	SGIS(1) Tutorial(1) Practical(1)	MCQ, SEQ, OSPE	Tutorial and practical feedback
28	Discuss adverse effects of smoking Explain effects of selected tobacco smoke constituents Describe organ-specific carcinogens in tobacco smoke	LGIS(1) Tutorial	MCQ, SEQ	Tutorial

29	Discuss effects of ionizing radiation on DNA Explain effects of ionizing radiation on organ system	SGIS(2) Tutorial	MCQ, SEQ	Tutorial

Sr. No	Learning objectives	MIT	Assessment	
	At the end of the teaching session student should be able to:		Summative	Formative
1	Recognize structure and function of bacterial cell	LGIS,(2) SGIS Practical(2) Tutorial	MCQs, SEQs, OSPE	Tutorial and practical feedback
2	Recall bacterial genetics	LGIS(2)		
3	• Discuss bacterial growth • Recall bacterial metabolism	LGIS(2) SGIS		
4	• Explain the virulence factors • Explain the pathogenesis and host defenses.	LGIS(2) SGIS(1) Tutorial(1)		
5	• Explain the mechanism of action of antimicrobials • Discuss various mechanism of drug resistance	LGIS(2) SGIS	MCQs, SEQs, OSPE	Tutorial
6	• Explain different methods of sterilization and disinfection • Apply different methods of sterilization and disinfection at appropriate places • Apply proper sterilization and disinfection procedures in field of Dentistry	LGIS,(2) SGIS(1) Tutorial(1)	MCQs, SEQs, OSPE	Tutorial and feedback
7	• Give examples of members of normal flora at different body sites. • Discuss importance of oral flora	LGIS,(2)	MCQs, SEQs	
8	Classify anaerobic bacteria	LGIS,(1) SGIS	MCQs, OSPE	
9	• Classify Gram positive cocci, • Identify Gram positive cocci • Explain pathogenesis and diseases caused by GPC	LGIS,(2) SGIS(1) Practical(2) Tutorial(1)	MCQs, SEQs, OSPE	
10	• Classify Gram negative rods • Identify GNR • Explain pathogenesis of infections caused by Gram Negative bacteria	LGIS,(4) SGIS Practical(2) Tutorial(1)	MCQs, SEQs, OSPE	Tutorial and practical feedback
11	• Classify Gram positive rods • Identify Gram positive rods	LGIS,(1) SGIS Practical Tutorial	MCQs, SEQs, OSPE	

12	• Classify enteric gram negative rods, • Identify enteric pathogens • Explain pathogenesis of infections caused by enteric bacteria	LGIS,(4) SGIS Practical Tutorial(1)	MCQs, SEQs, OSPE	
13	• Classify anaerobic organisms • Identify oral pathogens	LGIS,(1) SGIS Practical	MCQs, SEQs, OSPE	

	Explain pathogenesis of infections caused by oral pathogenic bacteria	Tutorial(1)		
14	Classify organisms causing zoonosis	LGIS,(1) SGIS	MCQs	
15	Classify mycobacteria Identify mycobacteria Explain infections caused by mycobacteria Explain pathogenesis of tuberculosis	LGIS,(2) SGIS Practical(1) Tutorial(1)	MCQs, SEQs, OSPE	
16	Reproduce structure and classification of viruses	LGIS,(1)	MCQs,EMQs	Tutorial
17	Describe pathogenesis of diseases caused by viruses Explain the host defenses against viral infections	LGIS,(1) SGIS Tutorial	MCQs, EMQs	
18	Recall the classification of DNA, RNA enveloped viruses Apply the knowledge of virology	LGIS,(1) SGIS Tutorial(1)	MCQs, SEQs, OSPE	Tutorial
19	Explain the pathogenesis of different infections caused by medically important viruses	LGIS,(1) SGIS Tutorial(1)	MCQs, SEQs, OSPE	
20	Recall the structure and classification of different hepatitis viruses Explain the pathogenesis of hepatitis Apply the basic concepts about hepatitis	LGIS,(2) SGIS Practical(1) Tutorial	MCQs, SEQs, OSPE	
21	Interpret and apply the basic concepts about HIV	LGIS,(2) SGIS Tutorial	MCQs, SEQs, OSPE	
22	Explain pathogenesis of infections caused by medically important parasites.	LGIS,(2) SGIS1 Practical(2) Tutorial	MCQs, SEQs, OSPE	Tutorial and practical feedback
23	Discuss basic fungal structure Outline the medically important fungi and their pathogenesis	LGIS,(1)	MCQs, EMQs	Tutorial

24	Discuss the medically important fungi	LGIS,(1) Practical	MCQs	
25	Recall the mechanism of cell mediated immune response Give examples of cells of immune response	LGIS,(2) SGIS	MCQs, SEQs	Tutorial and practical feedback
26	Recall the mechanism of humoral immunity Explain the structure and function of antigens and antibodies Explain the antigen antibody reactions	LGIS,(1) SGIS	MCQs, SEQs, OSPE	
27	Recall the mechanism of immunity Give examples of both types of immunity	LGIS,(2) SGIS	MCQs, SEQs, EMQs	
28	Classify hypersensitivity Explain each type of hypersensitivity Give examples of each type of hypersensitivity	LGIS,(2) SGIS Tutorial	MCQs, SEQs, OSPE	
29	Recall different types of immunodeficiencies Give examples and explain pathogenesis of different immunodeficiencies.	SGIS(1) Tutorial(1)	MCQs, EMQs	
30	Classify anemias Identify Bleeding disorders Explain Thalasemia and other hematological disorders Recall Disorders of white blood cells Explain problems and issues related with Transfusion	LGIS(2) SGIS(1) Practical(1) Tutorial (2)	SEQs,MCQs, EMQs, OSPE	Tutorial and feedback sessions
31	Differentiate types of Diabetes Explain the diagnosis and signs and symptoms of diabetes Explain liver function tests Explain renal function tests Explain cardiac markers, enzymology and lipid profile	LGIS(4) SGIS(2) Practical(1) Tutorial (2)	MCQs, EMQs, SEQs, OSPE	Tutorial and feedback session

ASSESSMENT STRUCTURE:

THEORY MARKS DISTRIBUTION:

Total Marks Theory = 100 Marks

Total Marks of MCQs = 40 Marks

Total Marks of SEQs = 50 Marks (Each SEQ of 5 Marks)

Internal Assessment = 10 Marks

PRACTICAL MARKS DISTRIBUTION:

Total Marks of Practical = 100 Marks

Total Marks OSPE = 40 Marks

Total Marks Viva = 50 Marks (25 Marks External Examiner, 25 Marks Internal Examiner)

Internal Assessment = 10 Marks