2nd Year

Basic Pathology & Microbiology

Objectives:

After completion of pathology & Microbiology course, the students will be able to:

a) explain basic mechanism of diseases: Etiology, pathogenesis, morphological changes with emphasis on common diseases prevalent in Bangladesh.
b) describe and understand the aetiopathogenesis of microbial agents such as bacteria, virus,
c) parasite and fungi commonly prevalent in Bangladesh
d) co-relate between clinical findings and pathological investigation.
e) chalk out simple investigation plan for diagnosis and follow up of diseases.
f) interpret laboratory results and understand their implication.
g) demonstrate basic knowledge about the use of Histopathology, FNAC, Cytological examination, Pap smear, Frozen section and Immuno-histochemistry
h) develop skills to perform
    i. TC, DC, Eosinophil count, estimation of Hb% and ESR
    ii. Semen analysis
    iii. Routine examination of Urine
    iv. Microscopic examination of body fluids
    v. CSF examination
    vi. Writing a requisition form for histo-pathological and cytological examination

List of Competencies to Acquire --

1. Writing a histo-pathological requisition form
2. Preservation of surgical specimens in Upozila health complexes and district hospitals and preparation of fixative for surgical specimens in 10% formalin
3. Sending of surgical specimens from Upozila health complexes and district hospitals to nearby medical college and larger hospitals where histopathology service is available
4. Preservation of cyto-pathological smears
5. Sending of cytopathology specimens from Upozila health complexes and district hospitals to nearby medical college and larger hospitals where histopathology and cytopathology service is available
6. Preservation of surgical specimens for immunohistochemistry and immunoflorescence
7. Writing a requisition form for immunohistochemistry or immunoflorescence examination
8. Determination of Hb%, ESR, TC & DC of WBC, total count of eosinophil, BT and CT, preparation of stain and comment on PBF.
9. Performing routine urinary examination at health complexes
10. Handling and maintenance of Microscope169
11. Interpretation of pathology reports and data
12. Writing advice for pathological investigations
13. Perceive the etio-pathogenesis of diseases caused by microbes commonly prevalent in Bangladesh
14. Proceed for diagnosing a case caused by microbes in terms of :
    a. appropriate specimens necessary for diagnosis
    b. timing of specimen collection and appropriate transport
    c. appropriate diagnostic tests to advise
15. Iinterpret the values of tests and the test results.
16. Provide Counseling regarding vaccination against common diseases and chemoprophylaxis

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Contents	Learning Objectives	Training /Learning experiences			Expected hours /days	Assessment
		Class-room instruction	Practical /visit	Aids		
General Pathology : **A) Introduction:** a) Introduction to different branches of pathology b) Definition of aetiology, morphology and pathogenesis **B) Acute & chronic inflammation:** a) Definition of inflammation b) Types of inflammation c) Causes of acute and chronic inflammation d) Morphological pattern of acute and chronic inflammation e) Fate of acute and chronic inflammation **C) Anaemia:** a) Anaemia: morphological and etiological classification b) Lab. diagnosis of nutritional anaemia, **D) Haemorrhage:** a) Definition of haemorrhage b) Pathophysiological causes of haemorrhage c) Lab investigations for haemorrhage **E) Fissure:** a) Definition of fissure b) Pathophysiological causes of fissure c) Lab investigations for fissure	**A) The students will be able to** a) describe in brief the Pathogenesis of diseases b) define pathology and its different branches c) define aetiology, pathogenesis and morphology **B) The students will be able to-** a) define of inflammation b) classify of inflammation c) state the causes of acute and chronic inflammation d) describe morphological pattern of acute and chronic inflammation e) describe fate of acute and chronic inflammation **C) Anaemia: The students will be able to-** a) define anaemia b) classify anaemia based on morphology and aetiology c) list the causes of anaemia d) state the laboratory investigations of anaemia **D) Haemorrhage: The students will be able to-** a) define haemorrhage b) list the pathophysiological causes of haemorrhage c) laboratory investigation for haemorrhage **E) Fissure: The students will be able to-** a) define fissure b) list the pathophysiological causes of fissure c) laboratory investigation for fissure	Lecture followed by Tutorial Do Do		Overhead Projector / Chalk board / Multimedia/ CD / Chart / Pictures	Lec-3 Tut-2 Lec-6 Tut-6 Lec8 Tut-10	Post session Written(SAQ) Viva & Practical

Contents	Learning Objectives	Training /Learning experiences			Expected hours /days	Assessment
		Class-room instruction	Practical /visit	Aids		
F) Fistulae: a) Definition of fistulae b) Causes of fistulae c) Lab investigations for fistulae	**F) Fistulae:** The students will be able to- a) define fistulae b) list the pathophysiological causes of fistulae c) laboratory investigation fistulae					
G) Ischaemia: a) Definition of ischaemia b) Causes of ischaemia c) Lab investigations for ischaemia	**G) Ischaemia**: The students will be able to- a) define ischaemia b) list the pathophysiological causes of ischaemia c) laboratory investigation ischaemia					
H) Oedema: a) Definition of oedema b) Classification of oedema c) Causes of oedema d) Lab investigations for oedema	**H) Oedema:** The students will be able to- a) define oedema b) classify oedema c) list the pathophysiological causes of oedema d) laboratory investigation oedema					
I) Thrombosis: a) Definition of thrombosis b) Causes of thrombosis c) Lab investigations for thrombosis	**I) Thrombosis**: The students will be able to- a) define thrombosis b) list the pathophysiological causes of thrombosis c) laboratory investigation thrombosis					
J) Embolism: a) Definition of embolism b) Causes of embolism c) Lab investigations for embolism	**J) Embolism**: The students will be able to- a) define embolism b) list the pathophysiological causes of embolism c) laboratory investigation embolism					
K) Shock: a) Definition of shock b) Classification of shock c) Causes of shock d) Lab investigations for shock	**K) Shock**: The students will be able to- a) define shock b) classify shock c) list the pathophysiological causes of shock d) laboratory investigation shock					

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L) Tumours: a) Definition of tumour b) Classification of tumour c) Causes of tumour d) Lab investigations for tumour **M) Gangrene**: a) Definition of gangrene b) Classification of gangrene c) Causes of gangrene d) Lab investigations for gangrene **N) Hypersensitivity**: a) Definition of hypersensitivity b) Classification of hypersensitivity c) Causes of hypersensitivity d) Lab investigations for hypersensitivity **O) Wound repair**: a) Definition of wound repair b) Causes of wound repair c) Lab investigations for wound repair **P) Necrosis**: a) Definition of necrosis b) Causes of necrosis c) Lab investigations for necrosis	**L) Tumours**: The students will be able to- a) define tumour b) classify tumour c) list the pathophysiological causes of tumour d) laboratory investigation tumour **M) Gangrene**: The students will be able to- a) define gangrene b) classify gangrene c) list the pathophysiological causes of gangrene d) laboratory investigation gangrene **N) Hypersensitivity**: The students will be able to- a) define hypersensitivity b) classify hypersensitivity c) list the pathophysiological causes of hypersensitivity d) laboratory investigation hypersensitivity **O) Wound repair**: The students will be able to- a) define wound repair b) list the pathophysiological causes of wound repair c) laboratory investigation wound repair **P) Necrosis**: The students will be able to- a) define necrosis b) list the pathophysiological causes of necrosis c) laboratory investigation necrosis					

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A) Microbiology Introduction a) Brief historical background b) Branches of Microbiology c) Concept of medical biotechnology in relation to Microbiology d) Importance and scope of microbiology in medical science.	A) **Microbiology:** The students will be able to— a) describe in brief the role of micro organism in producing disease.	Lecture followed by Tutorial Do Do	Practical	Overhead Projector / Slides / Chalk board / Multimedia/ CD / Chart / Pictures / Practical instruments	Lec-2hr Tut-1hr Prac-1hr Lec-3hr Tut-2hr Prac-2hr Lec-3hr Tut-2hr	Post session Written(SAQ) Viva & Practical
B) Sterilization **a)** Definition, classification and applications of sterilization, b) Methods of sterilizations: details of autoclaving, hot air oven and chemical methods. c) Sterilization of medical equipments: Critical. Semi-critical and non-critical devices	**B) Sterilization:** The students will be able to- a) define sterilization, disinfection and antisepsis b) describe certain methods of sterilization and disinfection, and outline their application c) select appropriate method of sterilization in their clinical practice.					

Contents	Learning Objectives	Training /Learning experiences			Expected hours /days	Assessment
		Class-room instruction	Practical /visit	Aids		
C) Bacteriology: Definition Classification Mode of infection Diseases produced by the following common bacteria:	**C) Bacteriology:** The students will be able to- a) describe in short the name of common bacteria, mode of infection & disease produced by them.					
• Staphylococcus • Streptococcus • Pneumococcus		Do	Do	-Do-	Lec-3hr Tut-2hr Prac-1hr	-Do-
• Gonococcus • Meningococcus		Do	Do	-Do-	Lec-2hr Tut-2hr Prac-1hr	-Do-
• Vibrio		Do	Do	-Do-	Lec-1hr Tut-1hr Prac-1hr	-Do-
• E.coli • Salmonella • Shigella		Do	Do	-Do-	Lec-3hr Tut-2hr Prac-1hr	-Do-

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		Class-room instruction	Practical /visit	Aids		
• M.Tuberculus • M.Leprae • C. Diptheria		Lecture & Tutorial	Practical	Overhead Projector / Slides / Chalk board / Multimedia/ CD / Pictures /instruments	Lec-4hr Tut-3hr Prac-2hr	Post session Written(SAQ) Viva & Practical
D) Virology: Definition, classification. List the medical importance virus , their spread and the diseases produced by them (including emerging and remerging virus) and their special importance to:	**D) Virology:** The students will be able to- a) describe in short the name of common Virus, mode of infection & diseases produced by them	-Do-	Do	-Do-	Lec-1hr Tut-1hr Prac-1hr	-Do-
• Measls virus • Influenza virus • Varicella virus • Herpeses virus		-Do-	Do	-Do-	Lec-2hr Tut-2hr Prac-1hr	-Do-
• Poliomyelitis • Rota virus		-Do-	Do	-Do-	Lec-2hr Tut-2hr Prac-1hr	-Do-
• Hepatitis viruses		-Do-	Do	-Do-	Lec-2hr Tut-2hr Prac-1hr	-Do-
• Dengue virus • Rabies virus		-Do-	Do	-Do-	Lec-2hr Tut-2hr Prac-1hr	-Do-
• HIV virus • Flu viruses		-Do-	Do	-Do-	Lec-2hr Tut-2hr Prac-1hr	-Do-
E) Mycology: Definition, classification of fungus, common superficial fungus & diseases produced by them	**E) Mycology:** The students will be able to- a) describe the common superficial fungal diseases and superficial candidial infections in short	-Do-	Do	-Do-	Lec-2hr Tut-2hr Prac-1hr	-Do-

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		Class-room instruction	Practical /visit	Aids		
F) Parasitology: Introduction Classification Mode of infection Name of disease produced by the following common parasites:	**F) Parasitology:** Introduction The students will be able to- a) describe in short the name of common parasites, mode of tansmission	Lecture & Tutorial		Overhead Projector / Slides / Chalk board / Multimedia/ CD / Chart / Pictures	Lec-2hr Tut- 4hr	Post session Written(SAQ) Viva & Practical
• Entamoeba histolytica • Malairial parasites		-Do-	Practical	-Do-	Lec-2hr Tut-2hr Prac-1hr	-Do-
• Giardia Lambia • Trichomonus vaganalis		-Do-	Practical	-Do-	Lec-1hr Tut-2hr Prac-1hr	-Do-
• Leishmania Donovani		-Do-	Practical	-Do-	Lec-1hr Tut-2hr Prac-1hr	-Do-
• A.L • A.D • E.V • T.T		-Do-	Practical	-Do-	Lec-2hr Tut-4hr Prac-1hr	-Do-
• Wuchereia bancrofti (micro filarial)		-Do-		-Do-	Lec-1hr Tut-2hr Prac-1hr	-Do-

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		Class-room instruction	Practical /visit	Aids		
G) Clinical Laboratory : • Blood	**G) Clinical Laboratory :** The students will be able to- a) perform Hb., ESR, T.C, D.C, M.P	Tutorial	Practical	Overhead Projector / Slides / Chalk board / Multimedia/ CD / Pictures / practical instruments / Reagents	Tut-6hrs Prac-7hrs	Post session Written (SAQ) Viva & Practical
• Urine :	The students will be able to— Perform : a) Physical examination b) Chemical examination : Sugar, Albumin, Reaction c) Microscopic examination: Puscel, R.B.C. Epithelial cell, Trichomonus	Tutorial	Practical	-Do-	Tut-6hrs Prac-7hrs	-Do-
• Stool :	The students will be able to— Perform : a) Pysical examination : Blood, Mucus, worms, colour, odour b) Chemical examination: Reaction, occult blood test c) Microscopic examination: Pus cell, R.B.C Cyst & Trophozoits of : E.H, E. coli, Giardia Ova of : A.L., A.D., T.T, E.V	Tutorial	Practical	-Do-	Tut-6hrs Prac-7hrs	-Do-