COURSE TITLE: MICROBIOLOGY & CLINICAL PRACTICE

		MARKS	
STUDY HOURS:	**60+160**	**THEORY**	**120**
PAPER:	**01**	**PRACTICAL:**	**30**
Term :	**4th**	**TIME :**	**03HRS**

COURSE CONTENTS

STUDY HOURS (Theory +Practical)

A. MICROBIOLOGY **60+60**

A1. Bacteriology:
- A1.1 Introduction
- A1.2 Basic features of bacteria.

A2 Classification of bacteria on the basis of :
- A2.1 Morphology
- A2.2 Gram Staining

A3 Procedure for examination of clinical specimens.
- A3.1 Collection and transport of specimens.
- A3.2 Inoculation of different specimens.

A4 Staining procedures used in bacteriology.
- A4.1 Gram staining.
- A4.2 Ziehl Neelsen staining.
- A4.3 Quality control of staining.

A5 Preparation and use of culture media.
- A5.1 Preparation of media.
- A5.2 Types of media.

A6 Biochemical tests for bacterial identification.

A7 Antibiotic sensitivity testing:
- A7.1 Techniques.
- A7.2 Sensitivity media.
- A7.3 Inoculation of sensitivity pates.
- A7.4 Selection of antibiotic discs.

A8 Virology:
- A8.1 Introduction
- A8.2 Classification of viruses.
- A8.3 Specimen collection'
- A8.4 Storage and transport.

A9 Immunology and Serology:
- A9.1 Immunity.
- A9.2 Types of antigen and antibodies.
- A9.3 Antigen antibody reactions: types
- A9.4 Agglutinations tests: Principle and types:
- A9.5 Enzyme liked immunosorbent assay (ELIZA)
- A9.6 Complement fixation texts.
- A9.7 Procedure of common laboratory tests in serology.
- A9.8 Serum dilution preparation.
- A9.9 Prozone phenomenon.
- A9.10 Hypersensitivity: definition and types

B. PRACTICAL ON ALL THE ABOVE CONTENTS 100

B1. Each lecture will be followed by two hours practical class where the students will apply their theoretical knowledge in the understanding of related Biochemical investigations, which have been proved useful for the diagnosis of human diseases.

B2. During the other laboratory sessions the students will be engaged in the preparation of various solutions, use of chemistry analyzers, Flame photometer, pH meter, oven, incubator, distillation plant, pipettes, water bath, centrifuge and practical procedures of biochemical investigations, quality control and examining urine for biochemical examination and microscopy.

B3. Each lecture will be followed by two hours practical class where the students will apply their theoretical knowledge in the understanding of related Microbiological and Histopathological investigations, which have been proved useful for the diagnosis of human diseases

RECOMMENDED BOOKS:

1. Manual of Laboratory Medicines AFIP by AFI of Pathology Rawalpindi.
2. District Laboratory Practice in Tropical Countries Vol. I by Monica.
3. District Laboratory Practice in Tropical Countries Vol.II by Monica.
4. A Handbook of Medical Laboratory Technology by VH Talib
5. Medical Micro Biology and Immunology by A Lange Medical Board

REFERENCE BOOKS:

1. Practical Hematology by Dacie
2. Clinical Chemistry:Principles Methods and Interpretation by Dr. Abdus Salam Gandapur.

COURSE TITLE: HISTOPATHLOGY, PARASITOLOGY AND MYCOLOGY & CLINICAL PRACTICE

STUDY HOURS:	**60+160**	**THEORY**	**120**
PAPER:	**02**	**PRACTICAL:**	**30**
TERM:	**4th**	**TIME :**	**03HRS**

COURSE CONTENTS STUDY HOURS (Theory +Practical)

A. HISTOPATHLOGY, PARASITOLOGY AND MYCOLOGY 20+20

A1.Routine Histpathological Techniques

A1.1 Reception and Fixation of biopsy.
A1.2 Qualities of good fixative
A1.3 Factors affecting fixation
A1.4 Gross examination
A1.5 Processing of tissues: manual and automation
A1.6 Steps in processing
A1.7 Embedding and cutting of sections
A1.8 Microtome
A1.9 Floating water bath
A1.10 Decalcification of bone
A1.11 Knife sharpener
A1.12 H and E staining
A1.13 Special stains in histopathology.

A2.Parasitology: 20+20

A2.1 Introduction
A2.2 Classification of parasites.
A2.3 Protozoa: Intestinal, urogenital, blood and tissue protozoa and laboratory diagnosis
A2.4 Cestodes: Types, morphology, characteristics and life cycle
A2.5 Trematodes: Types, morphology, characteristics and life cycle.
A2.6 Nematodes: Types,morphology,characteristics and life cycle.
A2.7 Stool examination:direct and concentration methods
A2.9 Malarial parasites and leishmania: Types, Life cycles and laboratory diagnosis.

A3.Mycology: 20+20

A3.1 Introduction
A3.2 Classification
A3.3 Cutaneous and subcutaneous mycoses.
A3.4 Systemic mycoses.
A3.5 Opportunistic mycoses.
A3.6 Staining in mycology.
A3.7 Laboratory diagnosis.

B. PRACTICAL ON ALL THE ABOVE CONTENTS 100

B1. During the other laboratory sessions the students will be engaged in the preparation of media, sterilization of glass wares, collection of microbiological specimens, laboratory reagents, various staining preparations and staining the slides and isolation of microorganisms from clinical materials.

B2. The students in the Histopathology will be engaged in the preparation of various solution/reagents/stains/fixatives, processing of tissues, cutting of blocks on microtome, staining of slides and preparation of cytological specimen for fixation and staining.

B3. The students in the Parasitology and Mycology sections will be engaged in the preparation of slides for microscopy from stool, blood, urine and other body fluids, identifying various ova and protozoa in these specimens and slide preparation for fungal studies.

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