Microbiology

Distribution of marks:

Total marks: 100 (Theory 50marks + Practical 50 marks)

Theory:

Theory exam (35); Internal Assessment (5); Theory viva (10) = 50 marks

Practical:

Final Practical (40) + Record (5) + Internal practical (5) =50 marks

Internal assessments:

3 internal assessments will be conducted every year.

The continuing assessment examinations may be held frequently at least 3 times in a particular year and the average marks of these examinations should be considered. 10% of the total marks in each subject for both theory, practical and clinical examination separately should be set aside for the internal assessment examinations.

The referred and detained students are also required to appear for a minimum of one internal assessment examination in theory and practical / clinical in the subjects concerned. New assessment marks are to be taken for the declaration of the results.

If the candidate is absent for any of the examinations, the marks in that shall be treated as zero.

Internal assessment examination should include MCQ's.

Part completion tests & weekly tests: Going on regularly

Eligibility to write university Exam:

Attendance percentage in theory and practicals should be more than 75% individually.

MICROBIOLOGY

AIM:

To introduce the students to the exciting world of microbes. To make the students aware of various branches of Microbiology, importance, significance and contribution of each branch to mankind and other fields of medicine. The objectives of teaching Microbiology can be achieved by various teaching techniques such as :

Lectures, Lecture Demonstrations, Practical exercises, Audio visual aids, and Small group discussions with regular feedback from the students.

OBJECTIVES:

a) KNOWLEDGE AND UNDERSTANDING:

At the end of the Microbiology course, the student is expected to:

- Understand the basics of various branches of Microbiology and be able to apply the knowledge relevantly.
- Apply the knowledge gained in related medical subjects like General Medicine and General Surgery and Dental subjects like Oral Pathology, Community Dentistry, Periodontics, Oral Surgery, Pedodontics, Conservative Dentistry and Oral medicine in higher classes.
- Understand and practice various methods of sterilisation and disinfection in dental clinics.
- Have a sound understanding of various infectious diseases and lesions in the oral cavity.

b) SKILLS:

1. Student should have acquired the skill to diagnose, differentiate various oral lesions.
2. Should be able to select, collect and transport clinical specimens to the laboratory.
3. Should be able to carry out proper aseptic procedures in the dental clinic.

COURSE CONTENT:

a) GENERAL MICROBIOLOGY:

- History, Introductions, Scope, Aims and Objectives.
- Morphology and Physiology of bacteria.
- Detailed account of Sterlisation and Disinfection.
- Brief account of Culture media and Culture techniques.
- Basic knowledge of selection, collection, transport and processing of clinical Specimens and identification of bacteria.

- Bacterial Genetics and Drug Resistance in bacteria.

b) IMMUNOLOGY:

- Infection – Definition, Classification, Source, Mode of transmission and types of infectious disease.
- Immunity
- Structure and functions of Immune system.
- The Complement System
- Antigens
- Immunoglobulins – Antibodies – General structure and the role played in defense mechanism of the body.
- Immune response
- Antigen – Antibody reactions – with reference to clinical utility in dental diseases and periodontal diseases.
- Immuno deficiency disorders – a brief knowledge of various types of immuno deficiency disorders – A sound knowledge of immuno deficiency disorders relevant to dentistry.
- Hypersensitivity reactions
- Autoimmune disorders – Basic knowledge of various types – sound knowledge of autoimmune disorders of oral cavity and related structures.
- Immunology of Transplantation and Malignancy.
- Immunohaematology

c) SYSTEMATIC BACTERIOLOGY:

- Pyogenic cocci – Staphylococcus, Streptococcus, Pneumococcus, Gonococcus, Meningococcus – brief account of each coccus – detailed account of mode of spread, laboratory diagnosis, Chemo therapy and prevention – Detailed account of Cariogenic Streptococci.
- Corynebacterium diphtheriae – mode of spread, important clinical features, Laboratory diagnosis, Chemotherapy and Active immunization.
- Mycobacteria – Tuberculosis and Leprosy
- Clostridium – Gas gangrene, food poisoning and tetanus.
- Non-sporing Anaerobes – in brief about classification and morphology, in detail about dental pathogens – mechanism of disease production and prevention.
- Spirochaetes – Treponema pallidum – detailed account of Oral Lesions of syphilis, Borrelia vincentii.
- Actinomycetes.

d) VIROLOGY:

- Introduction
- General properties, cultivation, host – virus interaction with special reference to Interferon.
- Brief account of Laboratory diagnosis, Chemotherapy and immuno prophylaxis in general.
- A few viruses of relevance to dentistry.
    - Herpes Virus
    - Hepatitis B Virus – brief about other types

- Human Immunodeficiency Virus (HIV)
- Mumps Virus
- Brief – Measles and Rubella Virus

- Bacteriophage – structure and Significance

a) MYCOLOGY

- Brief Introduction
- Candidiasis – in detail
- Briefly on oral lesions of systemic mycoses.

b) PARASITOLOGY:

- Brief introduction – protozoans and helminthes
- Brief knowledge about the mode of transmission and prevention of common parasitic infections in the region.

RECOMMENDED BOOKS FOR REGULAR READING:

1. Text book of Microbiology – R.Ananthanarayan & C.K.Jayaram Paniker.
2. Medical Microbiology – David Greenwood etal.

BOOKS FOR FURTHER READING / REFERENCE.

i. Microbiology – Prescott, etal.
ii. Microbiology – Bernard D.Davis, etal.
iii. Clinical & Pathogenic Microbiology – Barbara J Howard, etal.
iv. Mechanisms of Microbial diseases – Moselio Schaecter, etal.
v. Immunology an Introduction – Tizard
vi. Immunology 3rd edition – Evan Roitt, etal.