

Department of Microbiology

Pt. Jawahar Lal Nehru Government Medical College & Hospital, Chamba

Curriculum in Microbiology for phase II MBBS students

Theory and practical exercises for 3rd Semester

General Bacteriology topics:

- Historical Introduction
- Anatomy and Physiology of bacterial cell
- Bacterial taxonomy
- Culture media and culture methods
- Identification of bacteria
- Sterilization and disinfection
- Bacterial genetics

Immunology topics:

- Infection
- Antigen
- Antibody
- Antigen-antibody reactions
- Complement system
- Structure & function of Immune System
- Immune response
- Hypersensitivity
- Autoimmune disorders
- Immunodeficiency disorders
- Immunology of transplantation & malignancy

Practical Exercises:

- Principles of Microscopy
- Biosafety Measures & Biomedical Waste Management
- Selection, Collection and transportation of clinical specimens.
- Sterilization and Disinfection
- Gram staining of single organism & mixture of organisms
- Z.N staining
- Preparation, fixation, examination of smear & mixture of organism
- To study Solid culture media
- To study Liquid culture media
- Methods of Aerobic culture
- Methods of Anaerobic culture
- Antibiotic sensitivity testing
- IMVIC reactions
- Identification of bacteria

- ELISA, RIA, IF
- Agglutination reactions
- Precipitation reactions

Theory and practical exercise for 4th Semester

Systematic Bacteriology topics:

- Staphylococcus
- Streptococcus
- Pneumococcus
- Bacillus
- Corynebacterium
- Clostridium
- Non-sporing anaerobes,
- Mycobacteria
- Actinomyces, Nocardia
- Neisseria
- Hemophilus
- Brucella
- Bordetella
- Enterobacteria
- Yersinia, Pasteurella, Francisella
- Spirochetes
- Rickettsia
- Chlamydia & Chlamydophila
- Miscellaneous bacteria
- Helicobacter, Campylobacter, HACEK, Spirillum, Listeria, Legionella, Mycoplasma

Mycology topics:

- Introduction to medical mycology
- Superficial & cutaneous mycosis
- Subcutaneous mycosis
- Systemic mycosis
- Opportunistic mycosis

Practical Exercises:

- Study of Staphylococci
- Study of B-Haemolytic streptococci and Enterococcus
- Study of streptococcus pneumoniae and viridans streptococci
- Study of Neisseria group of organisms
- Study of Mycobacteria
- Study of Corynebacterium Diphtheria
- Study of Escherichia Coli
- Study of Klebsiella group of organisms
- Study of Bacteriological examination of water
- Study of Salmonella group of organisms

- Study of shigella group of organisms
- Study of Psuedomonas
- Study of Proteus, Providencia group of organisms
- Study of Vibrio cholera
- Study of Fungi Yeast, Yeast like and Dermatophytes
- Revision of Gram staining and Spotting
- Revision of Z.N staining and spotting

Theory and practical Exercise for 5th Semester

Virology topics:

- General properties of viruses
- Host-virus interactions
- Bacteriophage
- Herpes viruses
- Adenovirus
- Papilloma virus
- Pox viruses
- Picornaviruses
- Orthomyxoviruses
- Paramyxoviruses
- Arboviruses
- Rhabdoviruses
- Hepatitis viruses
- Oncogenic viruses
- HIV
- Slow viruses, Prions
- Emerging & re-emerging viral diseases
- Miscellaneous viruses

Parasitology topics:

- Classification of parasites
- Host-parasite interactions
- Protozoa: Entamoeba, Free-living amoebae, Giardia, Trichomonas
- Nematodes: Ascaris, Enterobius, Trichinella, Trichuris, Strongyloides, Hookworm, Filarial nematodes, Drancunculus, Larva migrans
- Cestodes: Taenia, Echinococcus, Hymenolepis, Diphylobothrium
- Trematodes

Applied Microbiology topics:

- Urinary Tract infections
- STDs & infections of the reproductive system
- Blood stream infections & PUO
- Wound & soft tissue infections
- Respiratory infections
- GI infections & food poisoning

- Healthcare associated infections
- CNS infections
- Immunization & immunoprophylaxis

Practical Exercises:

- Collection, transportation, Microscopic examination of stool for cellular exudates.
 - Concentration methods of stool, saline & iodine preparation of stool examination for protozoal cysts.
 - Stool examination for helminthic ova
 - To study Hydatid cyst, *Cysticercus cellulosae*, and L.D bodies
 - To study Malaria Parasite & *Microfilaria*
 - To study Entomology
 - Revision stool examination
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