Syllabus for Technical Assistant (Lab)-A to Technical Assistant (Lab)-B-MFCP

MICROBIOLOGY

General Microbiology - Sterilization and Disinfection, including autoclave, hot air oven, inspissator, ETO , plasma sterilisation and gamma irradiation. Disinfectants- categories, spectrum of action and use in different circumstances. Culture Media- Selective, enriched, enrichment, differential media amd media for specific bacteria. Fungal culture media, tissue culture media for viruses. Microscopy – Light , Phase contrast, fluorescent and Electron Microscopy. Simple stains, differential staining, fungal staining techniques. Sensitivity testing methods, MIC, automation in susceptibility testing, etest. Methods of inoculating samples, bacterial suspension, isolation of pure culture, stocking strains. Incubators, refrigerators, Biosafety cabinets, laminar flow cabinets.

Immunology – Basics of immunology. Antigen, antibody, Ag-Ab reactions and serology, Hypersensitivity reactions, autoimmunity, immune deficiency, complement . Principles of testing – ELISA, agglutination, precipitation, ELFA, Chemiluminescence, automation in serology. Equipments in the serology lab-centrifuges, vortex mixers, water bath and deep freezers, lab refrigerator. 3.

Mycology – Basics of fungal culture and microscopic techniques in mycology. Identification of yeasts and moulds. Fungal susceptibility testing

Bacteriology – Laboratory identification of bacteria , biochemical testing – principles. Individual bacteria- Staphylococci, streptococci, grampositive rods, gram negative bacilli- E.coli, other coliforms, non-fermenters, fastidious bacilli-Brucella, spirochaetes, Chlamydia, mycoplasma. Diseases associated wih bacteria and their lab diagnosis, like Meningitis, UTI, Pneumonia, sepsis. Tuberculosis – processing of specimens like CSF, sputum and automation in mycobacterial diagnosis

Virology – General properties of viruses, Culture methods, methods to demonstrate viruses and their identification.

Molecular diagnostics – PCR- conventional, RTPCR, Sanger sequencing and basics of genomic sequencing.

Quality control in the microbiology lab – internal and external quality assurance programmes.

Biosafety – Safety of laboratory personnel, personal protective equipment, levels of biosafety, vaccination. Biomedical waste disposal, disposal of liquid waste.

ADMINISTRATIVE OFFICER Gr.I(I/C)

7/3/24