SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES & TECHNOLOGY
THIRUVANANTHAPURAM–695 011, KERALA

(An Institute of National Importance under Department of Science and Technology, Govt.of India)
Web site: www.sctimst.ac.in

FCP Syllabus for SA(Lab)

Subject- Microbiology

1. 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, e-test. Methods of inoculating samples, bacterial suspension, isolation of pure culture, stocking strains. Incubators, refrigerators, Biosafety cabinets, laminar flow cabinets.
2. 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
4. 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
5. Virology – General properties of viruses, Culture methods, methods to demonstrate viruses and their identification. Common viruses like Influenza, Herpes viruses, Hepatitis viruses, Rabies, HIV, SARS-CoV, RSV. Viruses relevant to the present outbreaks- Nipah, Zika, CCHV, Measles, Mumps, Rubella.
6. Molecular diagnostics – PCR- conventional, RTPCR, Sanger sequencing and basics of genomic sequencing.
7. Quality control in the microbiology lab – internal and external quality assurance programmes.
8. Biosafety – Safety of laboratory personnel, personal protective equipment, levels of biosafety, vaccination. Biomedical waste disposal, disposal of liquid waste.

AO Gr. I (T/C)