

Microbiology syllabus for Technical assistant examinations

(FCP)

Unit 1: Sterilization & disinfection – principles, physical & chemical methods of sterilization with examples. Principle & function of autoclaves, hot air oven, inspissator, ETO steriliser, Y -irradiation. Indicators for quality check in sterilization. Sterility testing for sterile materials and international guidelines for its testing and maintenance of sterile / controlled environments.

Unit 2: Culture Media: principles of microbial cultivation. Preparation of different types of culture media and quality check. Different types of culture media – indicator medium, differential medium, enrichment medium, selective medium, defined medium, transport medium.

Unit 3: Culture requirements for bacteria /fungal cultures. Factors effecting microbial growth both as planktonic and biofilm mode. Methods for laboratory culture of planktonic and biofilm mode of bacteria. Culture methods – aerobic & anaerobic methods. Streak, stab, stroke, lawn, slope, pour plate & liquid culture methods, Craigie's tube method, Castaneda's method. Methods for isolating pure cultures. Method for storage of bacterial strains.

Unit 4: Principles of Microscopy. Methods for bacterial identification - staining, cultural characters, biochemical reactions.

Unit 5 : Immunology: Basics of immunity – passive & active immunity, vaccination. Antigen antibody reactions - commonly used diagnostic tests in clinical laboratory VDRL , RA, ASO, Widal, ELISA. Immunohaematology – Blood grouping.

Unit 6: Systematic bacteriology: Laboratory identification of gram positive cocci _ staphylococcus, Streptococcus, Pneumococcus. Gram Negative cocci – Neisseria, Gram negative Bacilli- Enterobacteriaceae family, Vibrio, Pseudomonas, Brucella, Mycobacterium culture methods. Gram positive bacilli: Clostridium, Corynebacterium, Spirochaetes.

Unit 7: Virology general properties of viruses, Virus culture methods, Commonly used laboratory methods for virus identification.

Unit 8: Microbiological methods for analysis of air & water.

Unit 9: Mycology : common methods for culture and identification of medically important fungi.

Unit 10: Quality control in Microbiology laboratory. Conductance of work in the Microbiology laboratory. Safety precautions to be taken in handling pathogenic/contaminating samples and its disposal. Record keeping.