

11	Which of the following microbiological assays is used to standardize antibiotics? a) Potency testing b) Disk diffusion method c) Plate count method d) Both a and b	CO-4	L-1
12	What is the main application of cell cultures in the pharmaceutical industry? a) Drug testing b) Vaccine production c) Gene therapy d) All of the above	CO-4	L-2
13	Which of the following methods is used for sterilization by heat? a) Radiation b) Autoclaving c) Filtration d) Gaseous sterilization	CO-2	L-1
14	Which of the following biochemical tests is used to identify Enterobacteriaceae family? a) IMViC tests b) Catalase test c) Oxidase test d) Coagulase test	CO-1	L-2
15	What is the purpose of a growth curve in microbiology? a) To measure the size of microorganisms b) To measure bacterial growth in a culture c) To determine bacterial morphology d) To identify bacterial species	CO-1	L-2
16	Which of the following is used as a sterility indicator in sterilization? a) Bacillus stearothermophilus b) Staphylococcus aureus c) E. coli d) Pseudomonas aeruginosa	CO-3	L-1
17	Which of the following disinfectants is an example of a halogen compound? a) Hydrogen peroxide b) Chlorine c) Alcohol d) Phenol	CO-2	L-1
18	What is the primary method for evaluating the microbial stability of pharmaceutical formulations? a) Antibiotic assay b) Sterility testing c) Bacteriological count d) Preservation testing	CO-3	L-2
19	Which of the following is used for the sterility testing of ophthalmic products according to pharmacopeias like IP, BP, and USP? a) Gram staining b) Endotoxin test c) Filtration method d) Microscopic examination	CO-3	L-1
20	The correct classification of bacteria based on morphology does NOT include: a) Coccus b) Bacillus c) Spirillum d) Prokaryote	CO-1	L-2

Section B (2 X 10 = 20 Marks)

1	Compare the structural and functional characteristics of prokaryotic and eukaryotic cells. Additionally, outline the various branches of microbiology.	CO-1	L-4
2	Describe the history of microbiology, highlighting its key milestones. Discuss the different branches of microbiology, their scope in detail.	CO-1	L-2
3	Describe the principle and procedure behind physical sterilization methods. How would you use IMViC biochemical tests to identify an unknown bacterium?	CO-4	L-3

Section C (7 X 5 = 35 Marks)

1	Describe the different phases of the bacterial growth curve and explain what happens during each phase.	CO-2	L-2
1	Differentiate chemical and mechanical methods of sterilization.	CO-3	L-4
2	Compare and contrast the various techniques for isolating pure cultures of bacteria	CO-1	L-4
3	Classify disinfectant with mode of action and factor influencing disinfectant.	CO-2	L-2
4	Explain the applications of cell cultures in pharmaceutical research.	CO-4	L-2
5	Identify the different sources of contamination in an aseptic area and methods of prevention.	CO-2	L-3
6	Illustrate the ultra-structure and morphological classification of bacteria.	CO-1	L-2
7	Identify and discuss the key factors that influence the rate of microbial spoilage in pharmaceutical products	CO-3	L-4