

Time: 3 Hours

Marks: 75

1. All questions are compulsory.
2. Figures to the right indicate full marks.

Q. I. MCQs

20 Marks

1. Who is father of antiseptic surgery?
 - a. L. Pasteur
 - b. A.V. Leeuwenhoek
 - c. Joseph Lister
 - d. Robert Hooke
2. _____ is an example of lactose fermenting bacteria.
 - a. Proteus vulgaris
 - b. Salmonella typhi
 - c. E.coli
 - d. Shigella flexneri
3. The Exponential phase in bacterial growth curve is also known as _____.
 - a. Log phase
 - b. Stationary phase
 - c. Lag phase
 - d. Decline phase
4. _____ is used for preservation of microbial culture.
 - a. Pour plate method
 - b. Streak plate method
 - c. Spread plate method
 - d. Lyophilization
5. Which of the following is used in electron microscope?
 - a) electron beams and magnetic fields
 - b) light waves
 - c) magnetic fields
 - d) electron beams
6. Fritz Zernike discovered _____ microscope.
 - a. Phase contrast
 - b. Dark field
 - c. Electron
 - d. Bright field
7. _____ most confirmatory test for E. coli.
 - a. Oxidase test
 - b. catalase test
 - c. Coagulase test
 - d. Indole test

8. Cell wall of *Mycobacterium leprae* contains _____.
- Acetic acid
 - Mycolic acid
 - Peptic acid
 - Gluconic acid
9. Bacterial protection is accomplished by _____.
- Fimbriae
 - Capsule
 - Cytoskeleton
 - Spore
10. Which group of organism would be favoured in acid soils?
- Fungi
 - Bacteria
 - Virus
 - Algae
11. Viruses are best grown in _____.
- Blood agar
 - Tissue culture medium
 - Enrichment medium
 - Selective medium
12. Which test will have to perform to ensure that all microorganisms have been destroyed or removed.
- Clarity testing
 - Leak testing
 - Pyrogen testing
 - Sterility testing
13. Phenol Coefficient indicates the _____ of disinfectants.
- Efficiency
 - Purity
 - Activity
 - Quantity
14. The microorganism used for microbiological assay of Vitamin B12 is _____.
- Lactobacillus casei*
 - Lactobacillus leichamanii*
 - Lactobacillus viridescens*
 - Lactobacillus plantarum*

15. HEPA filter is _____
- a. High Efficiency Particular Air
 - b. High Efficiency Particular Air Filtration
 - c. High Efficiency Particulate Air
 - d. High Effective Particulate Air
16. Class 100 is stand for ...
- a. Clean room is used in semiconductor industry
 - b. Clean room is used in microelectronic industry
 - c. Clean room is used for hydraulic equipment
 - d. Clean room is used in aseptic manufacturing in pharma industry
17. The growth of animal cells in vitro in suitable culture medium is called _____.
- a. Animal cell culture
 - b. Plant cell culture
 - c. Isolation of cells
 - d. Growth curve
18. _____ is used in a formulation to further reduce the risk of spoilage and to kill any contaminant.
- a. Agar
 - b. Yeast extract
 - c. Preservative
 - d. Malachite green
19. Best suitable medium for isolation of *Salmonella typhi* is _____.
- a. Nutrient agar
 - b. XLD agar
 - c. Mac Conkey agar
 - d. TCBS agar
20. The growth of test microorganisms is inhibited entirely in a circular area or zone around the cavity or cylinder containing a solution of antibiotic is called _____.
- a. Concentration of Inhibition
 - b. Capacity of Inhibition
 - c. Zone of Inhibition
 - d. Ratio of Inhibition

II) Answer the following (any 2 out of 3) Long questions 20 Marks

1. Define Electron Microscope. Which are the types of electron microscope.
Explain SEM in detail with the help of diagram.
Write a note on Pour plate and Streak plate method.
2. Enlist different methods for isolation of viruses. Explain Chick Embryo method using neat and label diagram. Write a note on lysogenic cycle.
3. Define sterilization. Explain Dry heat sterilization with the help of mode of action, Applications in pharmaceutical field, advantages, disadvantages.

III) Answer the following (any 7 out of 9) Short questions 35 Marks

1. Write significance of IMViC test? Explain Methyl red test and Citrate test.
2. Explain asexual method of reproduction in fungi.
3. Define Bioassay. Enlist types of microbiological assay and explain any one in detail.
4. Explain different factors affecting microbial spoilage of pharmaceutical products.
5. Write a note on applications of animal cell culture in pharma industry.
6. Explain isolation and cultivation of anaerobic bacteria using well labelled diagram of Anaerobic jar.
7. Define disinfection. Explain Gaseous sterilization with the help of mode of action, applications, disadvantages.
8. Write a note on design of aseptic area.
9. Define media. Explain selective media and differential media using suitable examples
