

Duration:3 Hours

Total Marks:75

N.B: 1) All Questions Compulsory.

2) Draw diagram wherever necessary.

- I MCQ **20 MARKS**
- 1) The term bacteriophage was coined by
    - a. De'Herelle
    - b. F.W. Twort
    - c. Beijernick
    - d. Iwanoski
  
  - 2) In a fluorescent microscope the objective lens is made of
    - a. Glass
    - b. Quartz
    - c. Polythene
    - d. fiberglass
  
  - 3) The antiseptic method was first demonstrated by
    - a. Iwanowski
    - b. Lord Lister
    - c. Edward Jenner
    - d. Beijerinck
  
  - 4) Sterilization is?
    - a. Process of growing microbes in laboratory
    - b. Process for preparation of media
    - c. Killing or destruction of all the living forms
    - d. Estimation of potency
  
  - 5) \_\_\_\_\_ is used to prevent infection by killing or inhibiting pathogen growth on animal tissues
    - a. sterilant
    - b. disinfectant
    - c. adsorbent
    - d. antiseptic
  
  - 6) Detection of microbial contamination and spoilage in sterile formulation can be done by \_\_\_\_\_
    - a. Sterility test
    - b. Preservative challenge test
    - c. IMViC test
    - d. Media sterilization test

- 7) What is secondary cell line?
- Multilayer culture
  - Transformed cells
  - Multiple growth of cells
  - Sub culturing of primary culture
- 8) Compound microscope was discovered by
- L. Pasteur
  - Johnsen & Hans
  - Joseph Lister
  - Robert Hooke
- 9) Absorptive heterotrophic mode of nutrition is present in \_\_\_\_\_
- Pteridophytes
  - Bryophytes
  - Fungi
  - Algae
- 10) Glassware is sterilized by
- Gases
  - Hot air oven
  - Incineration
  - waterbath
- 11) Lyophilization means
- Sterilization
  - Freeze drying
  - Burning of ashes
  - Fumigation
- 12) Tuft of flagella at a polar end is called
- Peritrichous
  - Monotrichous
  - Amphitrichous
  - Lophotrichous
- 13) **Which of this bacterium is resistant to  $\beta$  lactam antibiotics as it lacks a cell wall?**
- Spirochetes
  - Cyanobacteria
  - Mycoplasmas
  - Bdellovibrios
- 14) Well plate method depends on the \_\_\_\_\_ of antibiotics from a cavity through the solidified agar layer in a petri plate.
- Diffusion
  - Dissolution
  - Dispersion
  - Dissociation
- 15) **What is Phototaxis?**
- Swimming towards a bacteria
  - Swimming away of a bacteria

- 16) Aspergillus is a
- c. In the presence of a chemical compound, swimming towards or away of a bacteria
  - d. When whole organism moves towards or away from stimulus of light
  - a. Algae
  - b. molds
  - c. Bacteria
  - d. Protozoa
- 17) Bacteria are more sensitive to antibiotics at which phase of growth curve?
- a. Decline phase
  - b. Lag phase
  - c. stationary phase
  - d. Log phase
- 18) The growth of animal cells in vitro in a suitable culture medium is called \_\_\_\_\_
- a. Gene expression
  - b. Transgenesis
  - c. Plant tissue culture
  - d. Animal cell culture
- 19) Incubation temperature for bacteria in sterility testing as per I P is-----
- a. 35-37°C
  - b. 25-30°C
  - c. 40-45°C
  - d. 15-22°C
- 20) In cup plate method the graph plotted which relates zone diameter to -----
- a) logarithm of the concentration of antibiotics
  - b) Time
  - c) Density
  - d) antibacterial capacity

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

20 Marks

- 1) Draw a neat labelled diagram of bacterial cell and enlist the cell organelles of the bacteria exterior to the cell wall and explain in detail about cell wall of bacteria.
- 2) Discuss moist heat sterilization with respect principle, procedure merits demerits the mechanism of action and applications
- 3) Distinguish between bacteria and fungi and add note on asexual reproduction in fungi

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

35 Marks

- 1) Discuss in brief principles and methods of diffusion assay and add note on assay methods used for detection of vitamins.
  - 2) Discuss in brief with labelled diagram and all steps involved in lytic cycle of replication in T4 bacteriophage along with its applications
  - 3) Discuss in brief methods for assessment of a new antibiotic and testing of antimicrobial activity of a newly synthesised drug analogues.
  - 4) Discuss in detail sterility test on aqueous injections as per IP.
  - 5) Enlist different types of light microscopy and explain in detail bright field microscopy in detail along with applications
  - 6) Write a note on simple staining and Gram staining along with its applications in Microbiology
  - 7) Which are different types of microbial contaminants and add note on assessment of microbial contamination and spoilage.
  - 8) Write in detail about types of cell culture media used for animal cell tissue culture and its functions and add a note on established and transformed cell culture.
  - 9) Write in detail about the procedure for determination of total aerobic microbial load on raw material starch.
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