





- (v) F-value is expressed as \_\_\_\_\_.
- (a) Rate of death of microorganism
  - (b) Rate of survival of microorganisms
  - (c) Rate of motility of microorganisms
  - (d) None of these
- (vi) In Virion structure, regulatory protein is present which is known as \_\_\_\_\_.
- (a) Cell membrane
  - (b) Tegument
  - (c) Antigen
  - (d) Coat
- (vii) Spike projections on the outer surface of virus is \_\_\_\_\_.
- (a) Capsomeres
  - (b) Peplomers
  - (c) Proteomeres
  - (d) Viroid
- (viii) Test micro-organism used for microbiological assay of tetracycline \_\_\_\_\_.
- (a) Staphylococcus epidermidis
  - (b) Staphylococcus aureus
  - (c) Bacillus pumilus
  - (d) Bacillus subtilis
- (ix) The micro-organism used of microbiological assay of vitamin B<sub>12</sub> is \_\_\_\_\_.
- (a) Lactobacillus Leichamannii
  - (b) Poteriochromonas Stipitata
  - (c) Lactobacillus Virdescens
  - (d) Lactobacillus Plantarum
- (x) Lipid contents is more in \_\_\_\_\_.
- (a) Gram negative bacteria
  - (b) Gram positive bacteria
  - (c) Same in both
  - (d) None of these
- (xi) The order of stains in Gram-staining procedure is \_\_\_\_\_.
- (a) Crystal violet, Iodine solution, Alcohol, Saffranine
  - (b) Iodine solution, Crystal Violet, Saffranine, Alcohol
  - (c) Alcohol, Crystal Violet, Iodine solution, Saffranine
  - (d) All of these
- (xii) Mycobacteria are stained with \_\_\_\_\_.
- (a) Gram's staining
  - (b) Simple staining
  - (c) Both (a) and (b)
  - (d) Ziehl - Neelsen's staining



(xiii) Which of the following method of sterilization has no effect on spores?

- (a) Drying (b) Hot air oven  
(c) Autoclave (d) None of these

(xiv) Bacterial ribosomes are composed of \_\_\_\_\_.

- (a) Protein and DNA (b) Protein and mRNA  
(c) Protein and rRNA (d) Protein and tRNA

(xv) The viruses that live as parasites on bacteria are \_\_\_\_\_.

- (a) Fungi (b) Commensals  
(c) Bacteriophages (d) None of these

(xvi) The bacterium that is most commonly used in genetic engineering is \_\_\_\_\_.

- (a) Escherichia (b) Klebsiella  
(c) Proteins (d) Serratia

(xvii) Isolation is \_\_\_\_\_.

- (a) Purification of culture  
(b) Introduction of inoculum  
(c) Separation of a single colony  
(d) To grow microorganisms on surfaces

(xviii) Phenol co-efficient indicates \_\_\_\_\_.

- (a) Efficiency of a disinfectant (b) Dilution of a disinfectant  
(c) Purity of a disinfectant (d) Quantity of a disinfectant

(xix) Best method for getting pure culture is \_\_\_\_\_.

- (a) Streak-plate (b) Agar slant  
(c) Both (a) and (b) (d) None of these

(xx) Electron microscope studies do not help in identifying the section of bacterial spore \_\_\_\_\_.

- (a) Core (b) Spore cortex  
(c) Capsule (d) All of these



2. Answer any *Seven* :

(7 × 5 = 35)

- (a) Briefly describe the morphological classification of bacteria. Mention the difference between prokaryotes and eukaryotes.
- (b) Write a short note on nutritional requirement for bacterial culture medium. Explain the physical factors affecting bacterial growth.
- (c) Explain the isolation methods adopted for obtaining pure culture.
- (d) Explain Ziehl-Neelsen staining. Differentiate between gram positive and gram negative bacteria.
- (e) Explain briefly the physical methods of sterilization. Describe the factors affecting the D value.
- (f) Write a short note on classification of virus. Explain lysogenic cycle.
- (g) Differentiate between antiseptic and disinfectant. Explain the factors affecting antimicrobial activity.
- (h) Explain the factors affecting the microbial spoilage of Pharmaceutical products. Describe sources and types of microbial contaminants.
- (i) Describe briefly the application of cell cultures in pharmaceutical industry and research.

3. Answer any *Two* :

(2 × 10 = 20)

(a) Write short notes on :

(4 × 2.5 = 10)

- (i) Chick Martin Test
  - (ii) Rideal Walker Test
  - (iii) Crown Test
  - (iv) FDA Phenol coefficient test.
- (b) Briefly explain the design of aseptic area. Explain Cylinder Plate Method.
  - (c) Explain turbidity assay method. Explain standardization of vitamin B<sub>12</sub>.