

**B.Sc. (Part-I) (Semester-I) Examination**  
**MICROBIOLOGY**

**Fundamentals of Microbiology and Microbial Physiology**

Time : Three Hours]

[Maximum Marks : 80

- Note :—** (1) Question No. 1 is compulsory and carries 8 marks without any internal choice.  
(2) Question Nos. 2 to 7 carry equal marks with internal alternate choice.  
(3) Draw well labelled diagram wherever necessary.

1. (a) Fill in the blanks : 2
- (i) \_\_\_\_\_ is known as father of Bacteriology.
- (ii) Magnification power of oil immersion objective is \_\_\_\_\_ X.
- (iii) Eukaryotic ribosomes are \_\_\_\_\_ S.
- (iv) \_\_\_\_\_ are the organs of Mobility of Bacteria. 2
- (b) Choose the correct alternatives :
- (i) \_\_\_\_\_ are the bacteria which do not possess cell wall.
- (a) Actinomycetes (b) Rickettsia  
(c) Mycoplasma (d) Clamydia
- (ii) \_\_\_\_\_ group imparts the properties of colour to the dye.
- (a) Auxochrome (b) Chromophore  
(c) Chlorophore (d) All of the above
- (iii) Eosin Methylene Blue (EMB) agar is \_\_\_\_\_ Medium.
- (a) Differential (b) Non-synthetic  
(c) Enrichment (d) None of the above
- (iv) Chemotrophs require \_\_\_\_\_ as source of energy.
- (a) Sunlight (b) Chemical compounds  
(c) Air (d) All of these
- (c) Answer the following in one sentence each : 4
- (i) What is the role of 95% alcohol in Gram's staining ?
- (ii) Define Binary fission.
- (iii) Define Mix culture.
- (iv) Define Generation.
2. (a) Give contribution of Schwann and Schulze. 4
- (b) Briefly explain the harmful activities of Microorganisms. 4
- (c) Explain Medical Microbiology in brief. 4
- OR**
- (d) Explain Germ theory of disease in brief. 4
- (e) Explain different types of Microorganisms. 4
- (f) Discuss Koch's Postulates. 4

3. (a) Define :
- (i) Objective 4
  - (ii) Resolving Power. 4
- (b) Describe the principle of Gram's staining. 4
- (c) Enlist the parts of Compound Microscope and state the function of each part. 4
- OR**
- (d) Principle and ray diagram of dark field Microscope. 4
- (e) Describe Numerical aperture briefly. 4
- (f) Describe any one method of endospore staining. 4
4. Describe the general characteristics of Viruses, Actinomycetes and Fungi. 12
- OR**
- Describe in detail the Bergy's Manual of systematic bacteriology. 12
5. (a) Differentiate between cell wall of gram positive and gram negative bacteria. 4
- (b) Explain fluid mosaic Model in brief. 4
  - (c) Draw well labelled diagram of typical bacterial cell. 4
- OR**
- (d) Explain the Aagellum of Gm + ve bacteria. 4
  - (e) Define the Plasmid. Describe general characteristics of Plasmids. 4
  - (f) Describe Endospores in brief. 4
6. (a) Describe streak plate method for isolation of pure culture. 4
- (b) Describe Auxonographic technique. 4
  - (c) Explain the Solidifying Agent. 4
- OR**
- (d) Classify microorganisms on the basis of energy source. 4
  - (e) Describe lyophilization in brief. 4
  - (f) Explain Replica Plating in brief. 4
7. Define Synchronous culture and describe any one method to obtain Synchronous culture. 12
- OR**
- Describe in detail typical bacterial growth curve. 12