

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) Chlamydia
 - (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
(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 Agellum 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