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B.Sc. (Part-I) (Semester–I) Examination
MICROBIOLOGY
Fundamentals of Microbiology and Microbical 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

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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 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

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