B.Sc. (Part—I) Semester—I Examination

1S : 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 diagrams wherever necessary.

1. (A) Fill in the blanks :

(i) ..... is known as Father of antiseptic surgery.

(ii) ..... oil is used during the use of oil immersion objective.

(iii) Prokaryotic ribosomes are ..... S.

(iv) Mycology deals with the study of 2

(B) Choose the correct alternatives :

(i) Agar-Agar act as a .....

(a) Source of Carbon (b) Source of Nitrogen

(c) Solidifying Agent (d) Source of Energy

(ii) ..... are the bacteria which do not possess cell wall.

(a) Mycoplasma (b) Rickettsia

(c) Actinomycetes (d) Clamydia

(iii) Phototrophs require ..... as a source of energy.

(a) Sunlight (b) Ultraviolet light

(c) Air (d) None of these

(iv) Gram's Iodine act as ..... in Gram's staining.

(a) Primary Stain (b) Secondary Stain

(c) Decolorizer (d) Mordant 2

(C) Answer the following in one sentence each :

(i) Define Growth.

(ii) What are flagella ?

(iii) What is the magnification power of Oil Immersion objective ?

(iv) Define Pure culture. 4

2. (a) Discuss the Koch's postulates. 4

(b) Explain :

(i) Biotechnology

(ii) Medical Microbiology. 4

(c) Give any four beneficial activities of Microorganism. 4

OR

(d) Explain :

(i) Industrial Microbiology

(ii) Food Microbiology. 4

(e) Give contribution of Louis Pasteur in relation to spontaneous generation. 4

(f) Explain Germ theory of disease. 4

3. (a) Differentiate between dye and stain. 4

(b) Describe any one method of endospore staining. 4

(c) Explain :

(i) Numerical aperture

(ii) Objective. 4

OR

(d) Describe the principle of Gram's staining. 4

(e) Principle and ray diagram of dark field microscope. 4

(f) Explain :

(i) Working distance

(ii) Numerical aperture. 4

4. Give general characteristics of viruses, fungi and actinomycetes. 12

OR

Define taxonomy, identification and nomenclature. Give an outline of bacterial classification according to Bergey's Manual of Systematic Bacteriology. 12

5. (a) Define the plasmid. Describe general characteristic of plasmids. 4

(b) Describe ribosomes in brief. 4

(c) Explain fluid mosaic model in brief. 4

OR

(d) Draw well labelled diagram of typical bacterial cell. 4

(e) Describe endospore in brief. 4

(f) Differentiate between cell wall of gram +ve and gram negative bacteria. 4

6. (a) Explain :

(i) Phototrophs

(ii) Chemotrophs. 4

(b) Describe lyophilization in brief. 4

(c) Explain synthetic and nonsynthetic media in brief. 4

OR

(d) Explain the solidifying agent. 4

(e) Explain Replica plating in brief. 4

(f) Describe Streak Plate Method for isolation of pure culture. 4

7. Define continuous culture. Explain chemostat and turbidostat method for obtaining continuous culture. 12

OR

Explain in detail typical bacterial growth curve. 12