AU–32

B.Sc. (Part—I) Semester—I Examination

1S : MICROBIOLOGY

(Fundamentals of Microbiology and Microbial Physiology)

Time : Three Hours] [Maximum Marks : 80

N.B. :— (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 Microbiology.

(ii) Ribosome is a site of _____ synthesis.

(iii) Phycology deals with the study of _____.

(iv) The time required for cell division is called _____. 2

(b) Choose the correct alternatives :

(i) Nutrient Agar is _____ medium.

(a) Differential (b) Synthetic

(c) Non-synthetic (d) Selective

(ii) Auxanography is a technique for :

(a) Measurement of growth

(b) Preservation of culture

(c) Determination of nutritional requirements

(d) Sterilization of media

(iii) Medical Microbiology is study of _____ microorganisms.

(a) Non-pathogenic (b) Symbiotic

(c) Pathogenic (d) Harmless

(iv) Phototrophs require _____ as a source of energy.

(a) Sunlight (b) Ultraviolet light

(c) Air (d) Infrared light 2

(c) Answer the following in **one** sentence each :

(i) Pure culture

(ii) Endospore

(iii) Generation time

(iv) Chromogen. 4

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

(b) Discuss Koch's postulates. 4

(c) Explain Industrial Microbiology in brief. 4

OR

(d) Give contribution of Joseph Lister over antiseptic surgery. 4

(e) Give any four beneficial activities of microorganisms. 4

(f) Why agar-agar is used as solidifying agent ? Explain various properties of agar-agar. 4

3. (a) Define :

(i) Resolving power

(ii) Numerical aperture. 4

(b) Differentiate between dye and stain. 4

(c) Describe in brief acid fast staining. 4

OR

(d) Illustrate phase contrast microscopy with suitable diagram. 4

(e) Differentiate between Bright and Dark field microscopy. 4

(f) Describe flagella staining in brief. 4

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

OR

Give general characteristics of Mycoplasma, viruses and fungi. 12

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

(b) Differentiate between prokaryotic cell and eukaryotic cell. 4

(c) Describe endospores in brief. 4

OR

(d) Draw well labelled diagram of Fluid Mosaic Model of cytoplasmic membrane. 4

(e) Explain the flagellum of Gm +ve bacteria. 4

(f) Differentiate between prokaryotic and eukaryotic ribosomes. 4

6. (a) Differentiate between synthetic and non-synthetic media. 4

(b) Describe Auxanographic technique. 4

(c) Explain lyophilization in brief. 4

OR

(d) Explain Replica plating in brief. 4

(e) Describe any one method of isolation of pure culture. 4

(f) Explain :

(i) Autotrophs

(ii) Heterotrophs. 4

7. Describe in detail typical bacterial growth curve. 12

OR

Define continuous culture and describe any one method to obtain continuous culture. 12

www.sgbauonline.com