First Semester B. Sc. (Part - I) Examination

1S : MICROBIOLOGY

(Fundamentals of Microbiology and Microbial Physiology)

P. Pages : 7

Time : Three Hours] [Max. Marks : 80

Note : (1) All questions are compulsory.
(2) Draw well labelled diagrams wherever necessary.

1. (a) Fill in the blanks :—

(i) In bacteria _____ is the genetic material.

(ii) Magnification power of oil immersion objective is _____ X.

(iii) Study of bacteria is called as _____ .

(iv) Eukaryotic ribosomes are _____ S. 2

(b) Choose the correct alternative :—

(i) Bacterial cell wall is made up of

(a) Cellulose

(b) Hemicellulose

(c) Peptidoglycan

(d) Lignin.

(ii) _____ group imports the property of colour to the dye.

(a) Auxochrome

(b) Chromophore

(c) Chlorophore

(d) All the above.

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

(a) Actinomycetes

(c) Temperature requirement for growth. 4

OR

(d) Draw well labeled diagram of bacterial growth curve. 4

(e) Oxygen requirement for growth. 4

(f) Chemostat. 4

OR

(d) Draw well labeled diagram of fluid mosaic model of cytoplasmic membrane. 4

(e) Differentiate between prokaryotic and eukaryotic ribosomes. 4

(f) Define plasmids. Describe the general characters of plasmids. 4

6. Describe in detail the auxanographic technique for determination of nutritional requirements of bacteria.

OR

Describe the streak plate and pour plate methods for isolation of pure culture. 12

7. Describe in brief :

(a) Breed's method. 4

(b) Binary fission. 4

(b) Rickettsia

(c) Mycoplasma

(d) Clamydia.

(iv) In Lyophilization the pure culture is preserved by

(a) Saline suspension

(b) Overlaying with oil

(c) Feeze drying

(d) Desiccation using high temperature. 4

(c) Answer in one sentence.

(i) Who is father of Microbiology ?

(ii) What are Flagella ?

(iii) Define pure culture.

(iv) What is the role of iodine in Gram's staining ? 4

2. Briefly explain the following :-

(a) Contribution of Schulze for solving the controversy over spontaneous generation. 4

(b) Harmful activities of micro-organisms. 4

(c) Medical Microbiology. 4

OR

(d) Contribution of Joseph Lister in germ theory of diseases. 4

(e) Beneficial activities of micro-organisms. 4

(f) Industrial Microbiology. 4

3. Describe briefly :

(a) Principle and method of Gram staining. 4

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

(c) Numerical aperture. 4

OR

(d) Chromophore and auxochromes. 4

(e) Any one method of endospore staining. 4

(f) Resolving power. 4

4. Describe the general characteristics of viruses, Actinomycetes and Mycoplasma. 12

OR

Describe in detail the Bergy's manual of systematic bacteriology 12

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

(b) Differentiate between prokaryotic and eukaryotic cells. 4

(c) What are endospores ? Describe various arrangements of endospores. 4