AS–1362

B.Sc. (Part—I) Semester—I Examination

MICROBIOLOGY

(Fundamentals of Microbiology and Microbial Physiology)

Time : Three Hours] [Maximum Marks : 80

N.B. :— (1) **ALL** questions are compulsory.

(2) Draw well labelled diagrams wherever necessary.

1. (A) Fill in the blanks :— 2

(i) Joseph lister is known as _____.

(ii) Gram staining is a type of _____.

(iii) Turbidostat is used for obtaining _____ culture.

(iv) Sex pili are involved in bacterial gene recombination process known as _____.

(B) Choose the correct alternatives :— 2

(i) Phototrophs requires _____ as source of energy.

(a) Sunlight (b) Ultraviolet light

(c) Infrared light (d) Air

(ii) Cotton plug was discovered by _____.

(a) Antony-Van-Leeuwenhoek (b) Schroeder and Von Dusch

(c) John Tyndall (d) Louis Pasteur

(iii) G = _____.

(a) $\frac{1}{k}$ (b) $\frac{1}{kt}$

(c) $\frac{1}{k.\log t}$ (d) $\frac{1}{t.\log k}$

(iv) _____ oil is used in oil immersion objective.

(a) Custard (b) Soybean

(c) Cedar wood (d) Riso

(C) Define in one sentence each :— 4

(i) Psychrophiles

(ii) Endospore

(iii) Dyes

(iv) Viruses

2. Explain the following :—

(a) River's Postulates 4

(b) Beneficial activities of microbes 4

(c) Industrial Microbiology. 4

OR

(d) Contribution of Louis Pasteur in solving the controversy over spontaneous generation. 4

(e) Types of microorganisms. 4

(f) Harmful activities of microorganisms. 4

3. Differentiate between :—

(a) TEM and SEM. 4

(b) Simple staining and differential staining. 4

(c) Bright field and Dark field microscopy. 4

OR

(d) Define : Resolving power, Auxochromes and Magnification power. 4

(e) Describe the importance of oil immersion objective in Microbiology. 4

(f) Describe in brief acid fast staining. 4

4. Describe in detail microbial classification according to Bergey's Manual of systematic bacteriology. 12

OR

Give general characteristics of Viruses, Mycoplasma and Algae. 12

5. Draw well labelled diagram of :

(a) Typical bacterial cell 4

(b) Fluid Mosaic model 4

(c) Flagella of Gram positive bacteria. 4

OR

Explain the following in brief :—

(d) Endospore 4

(e) Plasmid 4

(f) Capsule. 4

6. Describe the following in brief :—

(a) Freeze drying 4

(b) Differential media 4

(c) Auxanographic technique 4

OR

(d) Selective media 4

(e) Streak plate method 4

(f) Nonsynthetic media. 4

7. Describe in detail different phases of bacterial growth curve. 12

OR

Explain various methods for cell number and cell mass measurement. 12