B.Sc. (Part–I) Semester–II Examination
BIOTECHNOLOGY (R/V)
(Microbiology)

Time : Three Hours] [Maximum Marks : 80

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

1. (A) Fill in the blanks :— 2

(i) In optical microscope _____ is used as source of illumination.

(ii) In bacterial classification name of the family is suffixed with _____.

(iii) In microscopy, TEM stands for _____.

(iv) _____ first explained theory of host parasite relationship for pathogenic microorganisms.

(B) Choose correct option :— 2

(i) Mantoux test is used for_____.

(a) Measles (b) Hepatitis
(c) Tuberculosis (d) Polio

(ii) Saccharomyces is _____.

(a) Saccharide (b) Saccharin
(c) Yeast (d) Mold

(iii) _____ is the counter stain in Gram Staining.

(a) Crystal violet (b) Iodine
(c) Safranin (d) Methylene blue

(iv) In microbiology laboratory, bacterial culture is preserved in _____.

(a) Autoclave (b) Hot air oven
(c) Refrigerator (d) Incubator

(C) Answer in **ONE** sentence each :— 4

(i) Photocell

(ii) Phagocytosis

(iii) Sterilization

(iv) Lithotrophs

2. Explain :—

(a) Objectives in compound microscope. 4

(b) Membrane filter. 4

(c) Gaseous chemosterilization. 4

OR

(d) Sterilization by hot air oven. 4

(e) Simple staining. 4

(f) Typical bacterial cell. 4

3. (a) Classify microbes on the basis of energy source. 4

(b) Differentiate between gracilicutes and firmicutes. 4

(c) Describe importance of methanogens. 4

OR

(d) Describe teichoic acids of bacterial cell wall. 4

(e) Differentiate between flagella of Gram positive and Gram negative bacteria. 4

(f) Explain halophiles. 4

4. Explain fixation of atmospheric nitrogen by following microorganisms :

(a) Azotobacter 4

(b) Rhizobium 4

(c) Cyanobacteria 4

OR

(d) Describe symbiotic association. 4

(e) Define antibiosis. Explain with suitable example. 4

(f) Explain ATP generation steps in electron transport chain. 4

5. Explain the role of following microbes as agricultural biofertilizers :

(a) Rhizobium 4

(b) Azotobacter 4

(c) PSB. 4

OR

Explain the importance of following industrially important microorganisms :

(d) Aspergillus 4

(e) Penicillium 4

(f) Spirulina 4

6. Describe in detail specific host defence mechanism. 12

OR

Describe in detail mycoplasma as pathogenic organism. 12

7. Describe in detail working and applications of UV-VIS spectrophotometer. 12

OR

Discuss biotechnologically important radioactive isotopes. 12