AU–76

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 diagram wherever necessary.

1. (A) Fill in the blanks :— 2

(i) In Gram's staining iodine is used as _____ .

(ii) _____ derive its energy from oxidation of chemical compounds.

(iii) Disease producing ability of microbial species is called as _____ .

(iv) _____ is the causative agent of cholera.

(B) Choose correct option : 2

(i) Hepatitis is the inflammation of _____ .

(a) Kidney (b) Lungs

(c) Liver (d) Heart

(ii) Cytochrome is an important component of _____ .

(a) Electron transport chain (b) Glycolysis

(c) TCA cycle (d) None of the above

(iii) Gram positive bacterial cell wall contain _____ peptidoglycan.

(a) 5—10% (b) 30—37%

(c) 50—60% (d) 90—95%

(iv) _____ gel is commonly used in gel electrophoresis.

(a) Pectin (b) Agar

(c) Gelatin (d) Agarose

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

(i) Single cell protein

(ii) Methanogenesis

(iii) Fermentation

(iv) Infection.

2. Explain following :—

(a) Objectives in optical microscope. 4

(b) Bacteriological filters. 4

(c) Sterilization by radiations. 4

OR

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

(e) Give ray diagram of compound microscope. 4

(f) Explain moist heat sterilization. 4

3. (a) Differentiate between phototrophs and chemotrophs. 4

(b) Describe thermophiles. 4

(c) Explain flagella of Gram negative bacteria. 4

OR

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

(e) Explain firmicutes. 4

(f) Draw well labelled diagram of fluid mosaic model. 4

4. Explain role of following mitrogen fixing microorganisms in agriculture :

(a) Rhizobium 4

(b) Azotobacter 4

(c) Cyanobacteria. 4

OR

(d) Explain antibiosis. 4

(e) Give diagramatic sketch of glycolysis. 4

(f) Explain bacterial photosynthesis. 4

5. Describe in detail alcohol fermentation using *Saccharomyces cerevisiae*. 12

OR

Classify cheese. Describe in detail cheese production. 12

6. Describe the following :—

(a) Tuberculosis. 4

(b) HIV. 4

(c) Active immunity. 4

OR

(d) Polio virus. 4

(e) Pathogenic fungi. 4

(f) Passive immunity. 4

7. Describe in detail principle, working and applications of paper chromatography. 12

OR

Describe in detail working and applications of PAGE. 12