4. Describe the following :

(a) Diagrammatic sketch of glycolysis reactions. 4

(b) Importance of Rhizobium in agriculture. 4

(c) Antibiosis as negative microbial association. 4

OR

(d) Draw well labelled diagram of TCA cycle. 4

(e) Differentiate between symbiotic and nonsymbiotic nitrogen fixation. 4

(f) Explain the role of cyanobacteria in agriculture. 4

5. Describe in detail industrial production of cheese.

OR

Describe in detail the use of **Penicillium** in antibiotic industry. 12

6. Explain the following :

(a) Laboratory diagnosis of tuberculosis. 4

Second Semester B. Sc. (Part – I) Examination

2 S : BIOTECHNOLOGY (R/V)

(Microbiology)

P. Pages : 5

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 paper chromatography _____ is used to visualize the spots of amino acids.

(ii) Mantoux test is used for screening of _____.

(iii) In gel electrophoresis _____ is commonly used as tracking dye.

(iv) _____ staining is used for staining of acid fast bacteria. 2

(B) Choose the correct alternative :—

(i) In glycolysis conversion of glucose to glucose – 6 – phosphate is catalyzed by _____

(a) Hexokinase.

(b) Galactokinase.

(c) Cellulose.

(d) Lipase.

(ii) Malachite green is used in _____

(a) Gram staining.

(b) Endospore staining.

(c) Flagella staining.

(d) None of these.

(iii) **Aspergillus niger** is used in industrial production of _____

(a) Acetic acid.

(b) Lactic acid.

(c) Glucoamylase.

(d) Glutaric acid.

(iv) Which of the following is used in laboratory as disinfectant :

(a) Lysol.

(b) Chlorine water.

(c) Bromine water.

(d) Methanol. 2

(C) Answer in **one** sentence each :—

(i) Numerical aperture.

(ii) Antibiotic.

(iii) Pathogen.

(iv) Immunity. 4

2. Draw well labelled diagram of :

(a) Typical bacterial cell. 4

(b) Ray diagram of scanning electron microscope. 4

(c) Various arrangements of bacteria. 4

OR

(d) Explain the parts of optical microscope involved in magnification. 4

(e) Differentiate between simple and differential staining. 4

(f) Describe sterilization by moist heat. 4

3. Describe in detail bacterial classification according to Bergey's manual of systematic bacteriology.

OR

Explain thermophiles halophiles and methanogens with its importance. 12

(b) Preventive measures of AIDS. 4

(c) Innate immunity. 4

OR

(d) Ringworm infection. 4

(e) Laboratory diagnosis of typhoid. 4

(f) Host parasite relationship. 4

7. Explain the following :

(a) Principle of paper chromatography. 4

(b) Applications of spectrophotometry. 4

(c) Beer – Lamberts law. 4

OR

(d) Principle of gel electrophoresis. 4

(e) Components of colorimeter. 4

(f) Applications of thin layer chromatography. 4