[This question paper contains 4 printed pages.]

1458 *Your Roll No.* .....

B.Sc. (Hons.) / III **A**

MICROBIOLOGY – Paper XIV

(Applied Microbiology)

(Admissions of 2004 and onwards)

Time : 3 Hours *Maximum Marks : 60*

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt **Five** *questions in all, selecting at least* **two** *questions from each Section. Attempt Section* **A** *and* **B** *on separate answer-books.* **All** *questions carry equal marks.*

SECTION A
(Industrial Microbiology)

1. Differentiate between the following :

   (a) Rose wine and White wines

   (b) Whisky and Wine

   (c) Amylases and Cellulases

   (d) Seed Fermenter and Production Fermenter

P.T.O.

(e) Sulphite waste liquor and Con steep liquor

(f) Upstream processing and down stream processing (2×6=12)

2. (a) Write short notes on **any three** of the following :–

(i) Legume inoculants

(ii) Antifoam agents

(iii) Molasses

(iv) Ion–exchange chromatography (3×3=9)

(b) Explain how a fed-batch fermentation process differs from a batch process giving suitable examples. (3)

3. (a) Under what conditions does *Aspergillus niger* accumulate citric acid in large quantities ? (2)

(b) How can you measure and control dissolved oxygen in a fermentation process ? (3½)

(c) Write the industrial producer and uses of **any three** of the following :

(i) Acetone

(ii) Streptomycin

(iii) Lipases

(iv) Lactic acid (1½=4½)

(d) With the help of a suitable example show how micro-organisms transform steroids. (2)

SECTION B
(Food and Dairy Microbiology)

4. (a) Comment on the following methods of food preservation –

(i) Dehydration

(ii) Canning

(iii) Refrigeration/Lyophilization (3×3=9)

(b) How would you detect a pathogen by polymerase chain reaction in any food product/stuff? (3)

5. (a) Discuss the mode of action of ethylene oxide. (3)

(b) What is yogurt? What are its benefits? (3)

(c) Why is water activity O_R pH important in microbial spoilage of any food product? (2)

(d) Enumerate the advantages of quick freezing over slow freezing. (4)

6. (a) Explain the following **any three** :

(i) Biopreservatives

(ii) Critical control point

(iii) Mycotoxins

(iv) Putrefaction (2×3=6)

(b) Discuss the symptoms of food poisoning caused by *C. botulinum/Staphylococcus achens.* (3)

(c) How can we prevent food borne illness ? (3)