

[This question paper contains 4 printed pages.]

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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

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- (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)

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- (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

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- (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)