

This question paper contains 3 printed pages]

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S. No. of Question Paper : 992

Unique Paper Code : 253505

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Name of the Paper : Industrial Microbiology (MIHT-510)

Name of the Course : B.Sc. (Hons.) Microbiology

Semester : V

Duration : 3 Hours

Maximum Marks : 75

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

Attempt any five questions.

All questions carry equal marks.

Attempt all the parts of the same question together.

1. (a) Describe the fermentation process involved in the production of the following : $6 \times 2 = 12$
 - (i) Riboflavin
 - (ii) Penicillin G.
- (b) Write a short note on cane molasses. 3
2. (a) Give the contributions of Louis Pasteur in industrial microbiology. 3
- (b) How microbial strains maintained and preserved in the fermentation industry ? 5

P.T.O.

- (c) Write the purpose of the following in fermenter : 2×2=4
- (i) Head space
 - (ii) Impeller.
- (d) Explain biotransformation with the help of a suitable example. 3
3. Differentiate between any *five* of the following : 3×5=15
- (a) Precipitation and filtration
 - (b) Complex and synthetic fermentation medium
 - (c) Laboratory and production scale fermenters
 - (d) Red wine and white wine
 - (e) Glucose isomerase and glucose oxidase
 - (f) Stationary and submerged fermentation.
4. (a) Draw a well labelled diagram of a Tower fermenter. 5
- (b) Write a note on primary screening. 5
- (c) How can you measure and control pH in a fermentation process ? 5
5. (a) Name the microbial producers and industrial applications of the following : 2×3=6
- (i) Citric acid
 - (ii) Lipase
 - (iii) Protease.
- (b) Describe the various physical and chemical methods used to disrupt microbial cells. 6
- (c) What is the role of Hops in brewing ? 3

6. (a) How does a Continuous stirred tank fermenter (CSTF) differ from a Fixed bed fermenter ? 4
- (b) How does solvent extraction help in downstream processing ? 3
- (c) What are the different methods of making wild type strains of *Corynebacterium glutamicum* leaky ? 3
- (d) Write the advantages and applications of the immobilized enzyme Penicillin acylase ? 3
- (e) Name a bottom and top fermenting yeast. $1 \times 2 = 2$