



M.Sc. III Semester Degree Examination, April/May - 2024

MICROBIOLOGY

MB DSC9 : Bioprocess Engineering and Industrial Microbiology (NEP)

Time : 3 Hours

Maximum Marks : 70

Note : Answer **any five** of the following questions with Question No. **1 (Q.1)** is **Compulsory**.
Each question carries **equal** marks.

1. Describe the design and construction of a typical fermenter. 14
2. Write an account on strain development methods. 14
3. Explain the industrial production and purification of enzymes. 14
4. Discuss process variables and its optimization. 14
5. Describe the HPLC and Gel filtration. 14
6. (a) Discuss the growth of filamentous microorganisms. 5
(b) Explain inoculum development for industrial fermentation. 5
(c) Write an account on industrial production of citric acid. 4
7. (a) Briefly discuss on principles of Bioprocess Engineering. 7
(b) Explain centrifugation methods. 7
8. (a) Briefly explain design of sterilization process for continuous fermentation. 5
(b) Explain protoplast fusion. 5
(c) Write a note on reverse osmosis. 4

