Progressive Education Society's
Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16
(Autonomous)
End Semester Examination: Oct/Nov 2024
Faculty: Science and Technology

Program: B. Sc. (04) **Semester: V** **SET: A**
Program (Specific): B.Sc. Biotechnology **Course Type: Core**
Class: T. Y. B. Sc. **Max. Marks: 35**
Name of the Course: Industrial Microbiology
Course Code:24 BBT-501 **Time: 2 Hr**

Instructions to the candidate:

1. ***There are 4 sections in the question paper. Write each section on separate page.***
2. ***All Sections are compulsory.***
3. ***Figures to the right indicate full marks.***
4. ***Draw a well labelled diagram wherever necessary.***

SECTION: A

Q1) Answer any <u>FIVE</u> of the following (Attempt any 5/6) **5**

1. Define: Auxotrophic mutant
2. State characteristics of ideal bioreactor
3. Write various organic nitrogen sources used in fermentation media
4. What is absolute filter?
5. Draw any two designs of impeller blade.
6. What is salting out?

SECTION: B

Q2) Answer any <u>FIVE</u> of the following (Attempt any 5/6) **10**

1. Justify: Use of inhibitors in fermentation media lead to produce desired product
2. How can we enhance engineering properties of stainless steel?
3. Elaborate on working of drum dryer in bioprocess.
4. Justify: Gradient plate technique is useful in isolation of analogue resistant mutant
5. What is scale down? State its importance in bioprocess.
6. What are advantages and disadvantages of using hydrocarbons as a source of carbon in fermentation media?

SECTION: C

Q3) Answer <u>TWO</u> of the following (Attempt any 2/4) **8**

1. Describe principle of air sterilization and its significance in preventing contamination in bioprocess.
2. Diagrammatically represent Rotary vacuum filter and explain its working.
3. Explain the method of measurement and control of pH in bioprocess.
4. Describe the principle behind high-pressure homogenization for cell disruption and its typical applications.

SECTION: D

Q4) Answer the <u>TWO</u> of the following (Attempt any 2/4) **12**

1. Describe process of large-scale production of lysine w.r.t producing strain, media, optimum conditions and recovery.
2. With neat labeled diagram describe principle and working of any one non mechanically agitated bioreactor
3. Describe different methods of continuous sterilization of media with neat labeled diagram.
4. How can auxotrophic mutants be utilized in industrial biotechnology for strain improvement? Discuss with appropriate example.