2303001109040002
EXAMINATION NOVEMBER 2024
MASTER OF SCIENCE (BIOTECHNOLOGY)
NINETH SEMESTER
INDUSTRIAL BIOTECHNOLOGY - LEVEL 4

[**Time: As Per Schedule]** **[Max. Marks: 70]**

Instructions:

1. **1. Fill up strictly the following details on your answer book**
   a. Name of the Examination : **MASTER OF SCIENCE (BIOTECHNOLOGY) NINETH SEMESTER**
   b. Name of the Subject : **INDUSTRIAL BIOTECHNOLOGY - LEVEL 4**
   c. Subject Code No : **2303001109040002**
      a. 2. Sketch neat and labelled diagram wherever necessary.
   0. 3. Figures to the right indicate full marks of the question.
4. All questions are compulsory.

Seat No:

Student's Signature

Q.1 Attempt any two **18**

a) Describe the economic benefits of industrial biotechnology. How does it enhance productivity and efficiency in industrial processes?
b) Discuss the development process of semisynthetic antibiotics. What are the key steps involved in modifying natural antibiotics to create more effective versions?
c) Explain the lactic acid fermentation process and its applications.

Q.2 Attempt any two **18**

a) Write on: The economic and environmental impact of using enzymes in the paper and pulp industry. How does enzyme technology support waste reduction and recycling?
b) Evaluate the use of recombinant enzymes in the dairy industry for cheese production. How do they compare with traditional rennet in terms of efficiency and product quality?
c) Explain the advantages of using enzyme technology in modern brewing practices. How does it enhance the efficiency and consistency of beer production?

Q.3 Attempt any two. **18**

a) Write on: The challenges associated with scaling up biodiesel production from vegetable oils. What strategies can be implemented to overcome these challenges?
b) Discuss the applications of PLA and PHA as biopolymers in various industries. How do their properties make them suitable for specific uses?
c) Discuss the applications of rapid test kits in healthcare. How do these kits contribute to disease diagnosis and management?

Q.4 Attempt any two. **16**

a) Explain the principles of Good Laboratory Practices (GLP) and their importance in research and development. How do they ensure the reliability and integrity of data?
b) Discuss the role of GMP in the manufacturing of pharmaceutical products. How does GMP ensure the safety, quality, and efficacy of these products?
c) Define Good Clinical Practices (GCP) and explain their role in clinical trials. How do they ensure the safety and rights of participants.

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