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Question Paper Code: U4D03

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2024

Fourth Semester

Biotechnology

21UBT403-BASIC INDUSTRIAL BIOTECHNOLOGY

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

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|--|--------|
| 1. Compare aerobic and anaerobic fermentation | CO1-U |
| 2. Draw a bioreactor and label its main components | CO1-U |
| 3. Identify two microorganism that are used for the production of lactic acid. | CO1-U |
| 4. Mention the significance of aspartic acid. | CO1- U |
| 5. How does tetracyclin act as an antibiotic? | CO1- U |
| 6 Which drug is called as the “Queen of Drugs”? Why? | CO1- U |
| 7 Differentiate biopesticides and biofertilizers | CO1- U |
| 8 Identify the ill effects of chemical pesticides on soil | CO1- U |
| 9 Expand MAb. Mention its significance | CO1 -U |
| 10 Predict the purpose of synthesizing recombinant proteins. | CO1- U |

PART – B (5 x 16= 80 Marks)

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|---|--------|------|
| 11. (a) Describe the principle, mode of operation and pros & cons of any two-unit operations that are used in bioprocess industry | CO1- U | (16) |
| Or | | |
| (b) Comment on Process flow sheeting –Elaborate the block diagrams, draw a pictorial representation for any one product of your interest. | CO1- U | (16) |
| 12. (a) Students of our department identified improper sewage system in Pulloor and have filed a complaint to our HoD. You, in our HoD’s point of view analyze the situation and give a solution to it. | CO1-U | (16) |

Or

- (b) MSG's are taste enhancers in junk food, explain the strategies for efficient production of it. CO1-U (16)

13. (a) Explain the upstream and downstream processing of streptomycin with the help of a flow sheet. CO1-U (16)

Or

- (b) Louis Pasteur once said, "In the fields of observation chance favors only the prepared mind". How does this statement, made in 1854, apply to Alexander Fleming's discovery of penicillin? Explain its detailed Industrial production and its modifications. CO1-U (16)

14. (a) A, B and C are friends belonging to the same class studying B.Tech Biotechnology. A and B are foodie while C is health conscious. They all are hungry and fought each other to have food from hotel or house. The health conscious C demanded other people to have food from home itself. Since they are Biotechnology students, they were curious to know the microbes in household products. So they have decided to prepare a chart of various microbes involving in the preparation of household products. Explain the application of microbes in household products including curd, yogurt, paneer, cheese, cakes, Idly, dosa. CO3-App (16)

Or

- (b) Elaborate the important criteria for selection of microorganisms, and the basic production process of SCP in a detail CO3-App (16)

15. (a) Interferon is a recombinant protein that is generated using recombinant DNA technology with the help of GE organism equally. Discuss its applications and technology. CO1-U (16)

Or

- (b) Write a detailed note on monoclonal antibodies, their production and application. CO1-U (16)