Reg. No. : | | | | | | | | | | |

Question Paper Code: U4D03

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 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)

1.	Define Fermentation.	CO1- U
2.	Compare aerobic and anaerobic fermentation.	CO1- U
3.	List 4 raw materials for the production of bioethanol.	CO1- U
4.	Illustrate the production of lactic acid with proper representations	CO2- App
5.	Define an antibiotic.	CO1- U
6	Classify secondary metabolites.	CO2- App
7	Mention the significance of lipases.	CO1- U
8	Differentiate bio pesticides and bio fertilizers.	CO1- U
9	What are immunoglobulins? Give example.	CO1- U
10	Mention the advantages of recombinant insulin.	CO1- U

PART – B (5 x 16= 80 Marks)

11.	(a)	Explain in detail the various stages involved in bio product production with neat schematic representations	CO1 - U	(16)
		Or		
	(b)	Write a detailed note on various media components to be present in microbial media formulation	CO1 - U	(16)
12.	(a)	Sketch the process flow sheet and analyze the strategies for the efficient production of any one organic acid	CO2 - App	(16)
		Or		

	(b)	Explain in detail the industrial production of citric acid with related diagrammatic representations.	CO2 - App	(16)
13.	(a)	Explain the upstream and downstream processing of penicillin with the help of a flow sheet.	CO1 - U	(16)
		Or		
	(b)	Explain in detail the upstream and downstream production of Greiseofulvin by drawing a process flow sheet.	CO1 - U	(16)
14.	(a)	Professor Dumbledore is identified with diabetics and is found to be more obese. He tried many diet plans and physical work outs, but nothing worked out. Only mixed pure proteins of various organisms helped him. So he has planned to produce such protein. You has his junior, help him in determining the strategies for production and recovery of such proteins.	CO2 - App	(16)
		Or		
	(b)	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.	CO2 - App	(16)
15.	(a)	Monoclonal antibodies have become the predominant class of new drugs developed in recent years. Justify and explain the experimental procedure for its production.	CO1 - U	(16)
		Or		
	(b)	Insulin is a recombinant protein that is generated using the GE organism *E. coli* and it has got various applications. Explain its production.	CO1 - U	(16)