Reg.No.:											

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 9015

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – MAY / JUNE 2024
Fifth Semester
Biotechnology
U19BTV51 – FERMENTATION TECHNOLOGY
(Regulation 2019)

Time: Three Hours Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Compare traditional and modern biotechnology.	2	K2	CO1
2.	Define Primary and Secondary metabolites.	2	K1	CO1
3.	How will you state that the sterilization process is success?	2	K2	CO2
4.	What is the role of draft tube in an airlift reactor?	2	K2	CO2
5.	Describe the holding time in sterilization process.	2	K1	CO3
6.	Define Del factor.	2	K1	CO3
7.	What is HETP?	2	K1	CO4
8.	Discuss the significance of tie-line in aqueous two phase system.	2	K2	CO4
9.	Define cheddaring.	2	K1	CO5
10.	Future of fermentation technology depends on rDNA techniques-justify the statement.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Explain about the various criteria involved in choosing the raw materials as substrates (carbon sources) for the fermentation processes.	13	K2	CO1

		(OR)			
	b)	Briefly explain about the significance of strain selection and strain improvement in the fermentation industry.	13	K2	CO1
12.	a)	Discuss the construction and operation of the Air lift bioreactors.	13	K3	CO2
		(OR)			
	b)	Explain in detail about the various components and its importance in bioreactor.	13	K3	CO2
13.	a)	Derive the expression for Sterilization kinetics and explain its significance.	13	K3	CO3
		(OR)			
	b)	Discuss about the various types of air filter and how does the depth of air filter can be derived.	13	K3	CO3
14.	a)	Discuss the general principle underlying in capillary electrophoresis method for separation process.	13	K3	CO4
		(OR)			
	b)	i. Illustrate the different types of membrane filtration and its application.	6	K3	CO4
		ii. Discuss the general principle underlying the aqueous two phase separation process.	7		
15.	a)	Discuss the challenges involved in production of modern biotechnology products.	13	K4	CO5
		(OR)			
	b)	Explain in detail about process involved in wine production.	13	K4	CO5

PART – C

(1 x 15 = 15 Marks)

Q. No.		Questions	Marks	KL	CO
16.	a)	Explain in detail, how you will design continuous sterilization process.	15	K5	CO3
		(OR)			
	b)	Explain the various stages and unit operations involved in the downstream processing operations.	15	K5	CO4