QP Code: RA21BTECH819 | Reg. No | | | | | | | | | | | AR 21

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)

B. Tech (Eighth Semester - Regular) Examinations, April – 2025

21BCHOE48011 – Biochemical Engineering

(Chemical Engineering)

Time: 3 hrs | Maximum: 70 Marks

Answer ALL questions

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

		CO #	Blooms Level
Q.1.	Answer ***ALL*** questions		
a.	Define cell theory.	CO1	K1
b.	What is substrate inhibition on cell growth?	CO1	K1
c.	What are the factors affecting enzyme activity?	CO2	K2
d.	What are the different components for fermentation process?	CO3	K2
e.	Define aspect ratio in bubble column.	CO4	K1

PART – B **(15 x 4 = 60 Marks)**

		Marks	CO #	Blooms Level
	Answer ***all*** the questions.			
2. a.	Describe about Enzyme immobilization importance & its methods.	8	CO2	K3
b.	Explain the lock and key model of enzymatic reaction.	7	CO2	K2
	(OR)			
c.	Name the enzymes with their activities as per IUB.	8	CO2	K3
d.	Explain the factors affecting the enzyme activities.	7	CO2	K2
3.a.	Briefly explain batch and continuous sterilization.	10	CO3	K2
b.	What are the factors that consider as essential for successful design and operation of a fermenter?	5	CO3	K2
	(OR)			
c.	Elaborate transport phenomena in cellular system.	8	CO3	K3
d.	Explain the importance of mass transfer study in Bioreactor.	7	CO3	K2
4.a.	Explain the working principle, advantages and disadvantages of batch reactor with neat sketch.	8	CO4	K3
b.	Describe details about different methods of controlling fermenter process parameters.	7	CO4	K2
	(OR)			
c.	Explain the working principle of air lift reactor with neat sketch.	8	CO4	K3
d.	Explain in details the production of biogas and the factors affecting methane formation.	7	CO4	K2
5.a.	Explain Eukaryotic cell with neat sketch	10	CO1	K2
b.	Describe five kingdom classifications.	5	CO1	K2
	(OR)			
c.	Write a short note on Algae and Protozoa.	8	CO1	K2
d.	Describe the growth associated and non-growth associated product formation in fermentation process.	7	CO1	K1

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