GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Fifth Semester Regular) Examinations, December – 2023

21BBTPE35001– Industrial Microbiology and Enzyme Technology

(Biotechnology)

Time: 3 hrs Maximum: 70 Marks

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions

		CO #	Blooms Level
a.	Differentiate between batch fermentation and continuous fermentation.	CO1	K2
b.	List any four industrially important fermentation product and their source organism.	CO1	K3
c.	What are the methods employed to inactivate microorganism?	CO2	K1
d.	What are the essential features of an ideal strain?	CO3	K1
e.	What do you mean by enzyme stability?	CO4	K1

PART – B **(15 x 4 = 60 Marks)**

Answer ***ALL*** questions

		Marks	CO #	Blooms Level
2. a.	Explain the different stages of fermentation process.	7	CO1	K2
b.	Differentiate between solid state fermentation and submerged fermentation.	8	CO1	K2
	(OR)			
c.	Draw a labelled diagram of fermenter and describe its parts.	7	CO1	K2
d.	Discuss about the advantages and disadvantages of fermentation.	8	CO1	K2
3.a.	Give a brief account on production of commercially important amino acid.	8	CO2	K3
b.	Explain about the microbial process for the production of citric acid with its application?	7	CO2	K2
	(OR)			
c.	Demonstrate the microbial production of proteases with a flow diagram.	8	CO2	K3
d.	Differentiate between solid state fermentation and submerged fermentation.	7	CO1	K2
4.a.	Discuss the screening and characterization of microorganism.	8	CO3	K2
b.	Discuss about the importance of different components of industrial media.	7	CO3	K2
	(OR)			
c.	Discuss about strain selection and development.	8	CO3	K2
d.	Discuss about the improvement of strain through induced mutation.	7	CO3	K2
5.a.	What are extremophiles? How does extremophiles provide insights into enzyme stability under extreme conditions?	7	CO4	K1
b.	Discuss about classification of biocatalyst and give suitable examples.	8	CO4	K2
	(OR)			
c.	What is the significance of enzyme stability in industrial application.	7	CO4	K1
d.	Discuss in brief about the strategies for enzyme stabilization..	8	CO4	K2

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