Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree Examination (Regular and Supplementary), December 2020

Course Code: CH407

Course Name: BIOCHEMICAL ENGINEERING

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1	a)	Describe the structure of a eukaryotic cell with a diagram.	(10)
	b)	Compare competitive and uncompetitive inhibition.	(5)
2	a)	Derive the expression for Michaelis-Menten kinetics for a single-substrate enzyme catalysed reaction.	(10)
	b)	Write short note on cell fractionation.	(5)
3	a)	Explain polysaccharides with examples.	(8)
	b)	Describe feedback inhibition of enzymes.	(7)

PART B

Answer any two full questions, each carries 20 marks.

4	a)	Describe enzyme immobilization. Explain the physical methods used for enzyme immobilization.	(10)
	b)	Describe the Embden-Meyerhof-Parnas (EMP) pathway.	(10)
5	a)	Differentiate between hydrolytic and proteolytic enzymes. List out the industrial applications of the same.	(10)
	b)	Describe the pentose-phosphate pathway.	(10)
6	a)	Describe transport of biomolecules in and out of a cell.	(10)
	b)	List out and explain five medical applications of enzymes.	(10)

PART C

Answer any two full questions, each carries 15 marks.

7	a)	Write short note about a fed -batch reactor?	(5)
	b)	Describe the different stages of a typical batch growth curve.	(10)
8	a)	With a neat schematic diagram explain the steps involved in the transport of oxygen from a gas bubble to inside of a cell. Describe the resistances involved.	(10)
	b)	What is a hemocytometer? How is it used?	(5)
9	a)	Describe the mass transfer across a gas liquid free surface.	(6)
	b)	Describe Gaden’s classification of fermentation schemes.	(9)

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