Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.PHARM - SEMESTER– 5 EXAMINATION – SUMMER -2023

Subject Code: BP505TT Date: 23/06/2023

Subject Name: Pharmaceutical Biotechnology

Time:02.30 p.m. to 5.30 p.m. Total Marks: 80

Instructions:

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain the steps of rDNA technology with its flow diagram.	**06**
	(b)	What is plasma substitute? Give the difference between Plasma and Serum.	**05**
	(c)	Write a note on PCR.	**05**
Q.2	**(a)**	Give applications of biotechnology in the field of pharmaceutical sciences.	**06**
	(b)	Define enzyme immobilization. Explain in detail about different techniques.	**05**
	(c)	Define Biosensor. Discuss applications of biosensors in Pharmaceutical Industries.	**05**
Q.3	**(a)**	What is Mutation? Give types of Mutation in detail.	**06**
	(b)	Explain about production of Vitamin B 12 with flow chart steps.	**05**
	(c)	Give the flow chart of Griseofulvin production, isolation and recovery by fermentation technique.	**05**
Q.4	**(a)**	Define Immunity. What are antibodies? Draw neat structures of all Immunoglobulins.	**06**
	(b)	Enumerate types of hypersensitivity reaction and explain anaphylactic hypersensitivity.	**05**
	(c)	Differentiate in detail for B cell and T cell.	**05**
Q.5	**(a)**	What in protein engineering? Give applications in protein engineering in pharma and medicine.	**06**
	(b)	Differentiate (i) Humoral - Cellular immunity; (II) Active - Passive immunity.	**05**
	(c)	Give structure and functions of Major Histocompatibility Complex.	**05**
Q. 6	**(a)**	Write a note on Production of Hepatitis B vaccine.	**06**
	(b)	Write a note on Immuno blotting Techniques.	**05**
	(c)	Write commercial uses of below mentioned enzymes: Protease, Amylase, Peroxidase, Lipase,and Penicillinase	**05**
Q.7	**(a)**	Write note on 1. Cloning vectors 2. Toxoids and anti-toxins	**06**
	(b)	Note on mutagenic agents. How mutants are identified?	**05**
	(c)	Explain about ELISA.	**05**

****