

GUJARAT TECHNOLOGICAL UNIVERSITY
B.PHARM – SEMESTER – 5 EXAMINATION – SUMMER-2025

Subject Code: BP505TT**Date: 19-05-2025****Subject Name: Pharmaceutical Biotechnology****Time: 02.30 PM TO 05.30 PM****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)	What is biosensor? Explain the ideal characteristics of a biosensors.	06
	(b)	Write a note on bacterial conjugation.	05
	(c) - i	Comment: Vaccine is example of passive immunity.	02
	(c) - ii	Give two examples of each: killed bacterial vaccine, live viral vaccine and anti-toxin.	03
Q.2	(a)	Explain the working mechanism of HAT (hypoxanthine-aminopterin-thymidine) media for the selection of hybridoma cell.	06
	(b)	Explain the general method of preparation for viral vaccine.	05
	(c) - i	Explain following terms: Genes and Chromosome.	02
	(c) - ii	Give catalytic reaction by following enzymes: Amylase, Catalase, Lipase.	03
Q.3	(a)	Write a note on cell mediated immune response.	06
	(b)	Write a note on recombinant DNA technology and its application in pharmacy field.	05
	(c) - i	Comment: Virus is example of prokaryotic organism.	02
	(c) - ii	What are interferons? Explain its function in immune response.	03
Q.4	(a)	Define mutation ? Classify mutagenic agents with suitable examples.	06
	(b)	Write a note on various type of hypersensitivity reactions.	05
	(c) - i	Give two examples of thermostable DNA polymerase enzyme.	02
	(c) - ii	Differentiate: aerobic fermentation and anaerobic fermentation.	03
Q.5	(a)	Define Cloning vector. Explain in detail applicability of plasmid as a cloning vector.	06
	(b)	Write a note on PCR and its application in pharmacy field.	05
	(c)	Write a note on application of biotechnology in the field of pharmacy with suitable examples.	05
Q. 6	(a)	What are immunoglobulins? Explain types and structure of immunoglobulins detail.	06
	(b)	Write a note on southern blotting technique and its application.	05
	(c) - i	Explain the function of MHC class -I and Class – II	02
	(c) - ii	Explain the essential measure for safe storage of vaccines.	03
Q.7	(a)	Define enzyme immobilization. Classify various methods for it and explain any one in detail.	06
	(b)	Write a note on production of penicillin by fermentation technique.	05
	(c) - i	What are restriction endonuclease enzymes. Explain its function in bacteria.	03
	(c) - ii	Explain the words: plasma and serum.	02