Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm. – SEMESTER – VI • EXAMINATION – WINTER • 2016

Subject Code: 260002 **Date: 21-10-2016**

Subject Name: Pharmaceutical Microbiology and Biotechnology - II

Time: 02:30 pm - 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 gene cloning? Describe gene cloning by restriction endonulease.	**06**
	(b)	Discuss scope of biotechnology.	**05**
	(c)	Write a detailed note on Transformation.	**05**
Q.2	**(a)**	What is mutation? Enlist types of mutation. Write a note on mutagens.	**06**
	(b)	Write a short note on Replica plate method to identify the mutants.	**05**
	(c)	Write a note on humulin.	**05**
Q.3	**(a)**	Differentiate: (i) Active and Passive Immunity (ii) Toxin and Toxoid	**06**
	(b)	Classify vaccines. Write a note on production of live bacterial vaccine.	**05**
	(c)	Write a note on Schick test.	**05**
Q.4	**(a)**	Write a note on Immunoglobulins.	**06**
	(b)	Comment :(i) Second line defense is nonspecific defense. (ii) TAB is mixed polyvalent vaccine.	**05**
	(c)	Write a note on serological reactions.	**05**
Q.5	**(a)**	Draw well labeled diagram of a fermenter. Describe its parts in brief.	**06**
	(b)	Discuss upstream processing for fermentation of Penicillin.	**05**
	(c)	Discuss downstream processing of fermentation on Vitamin B_{12}.	**05**
Q. 6	**(a)**	Comment: (i) Liquid media is preferred in large scale fermenters. (ii) Seed culture is used for large scale fermentation.	**06**
	(b)	What is importance of primary and secondary screening in fermentation? Describe any one of primary screening method.	**05**
	(c)	Give flow sheet for production of streptomycin by fermentation.	**05**
Q.7	**(a)**	What is immobilization of enzymes? Give its advantages and applications.	**06**
	(b)	Enlist techniques of Immobilization of enzymes. Discuss any two in detail.	**05**
	(c)	Discuss factors affecting enzyme kinetics.	**05**

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