Se	eat No.:	Enrolment No	Enrolment No	
	•	GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-VI (NEW) - EXAMINATION – SUMMER 2016 Code:2160509 Date:17/05/2016 Name: Biotechnology	6	
T	•	0:30 AM to 01:00 PM Total Marks: 7	Total Marks: 70	
11	1. 2.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.		
Q.1	(a)	Define gene cloning. Write down the procedure involved and tools used for gene cloning.	07	
	(b)	Define the biotechnology. Comment on the multidisciplinary nature and the commercial potential of biotechnology.	07	
Q.2	(a)	Define the culture media. Discuss various types of media used for plant tissue culture.	07	
	(b)	What is monoclonal antibody? Describe the production of monoclonal antibodies and discuss their various application.	07	
		OR		
	(b)	Briefly outline the various steps of in vitro fertilization and embryo transfer in human beings.	07	
Q.3	(a)	Describe the technique of plant tissue culture under the following heads: i) culture vessels, ii) sterilization.	07	
	(b)	Define cryopreservation. Briefly describe the procedure of cryopreservation of plant cell.	07	
		OR		
Q.3	(a)	Define germplasm. Briefly describe the various approaches for in vitro germplasm conservation.	07	

- **(b)** Briefly outline the steps in cheese production and discuss the role of microorganism and enzyme in food industries.
- **Q.4** Define vaccines. Briefly explain the different type of vaccines and enumerate **07** (a) their advantages and limitation.
 - Briefly describe the enzyme under the following heads: i) classification and **(b) 07** nomenclature and ii) enzyme kinetics.

OR

- Define biofuel and Biogas. Describe the procedure and reaction involved in bio **Q.4** 07 (a) gas production.
 - **(b)** Define SCP. Briefly describe the production of SCP under following heads: i) 07 organism, ii) substrate, and iii) production and recovery.

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Q.5	(a)	Briefly describe the aerobic treatment of waste water and the method of determining the levels of waste in water.	07
	(b)	Explain the concept of risk assessment relevant to recombinant DNA technology with special reference to laboratory experiments.	07
Q.5	(a)	OR What are patents? Briefly describe the various requirement for and the process	07
	(b)	of award of a patent. Define the waste and pollutant. Briefly describe the various sources of waste and discuss the hazards from them.	07
