Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– IV• EXAMINATION – SUMMER 2015

Subject Code: 141402 **Date: 28/05/2015**

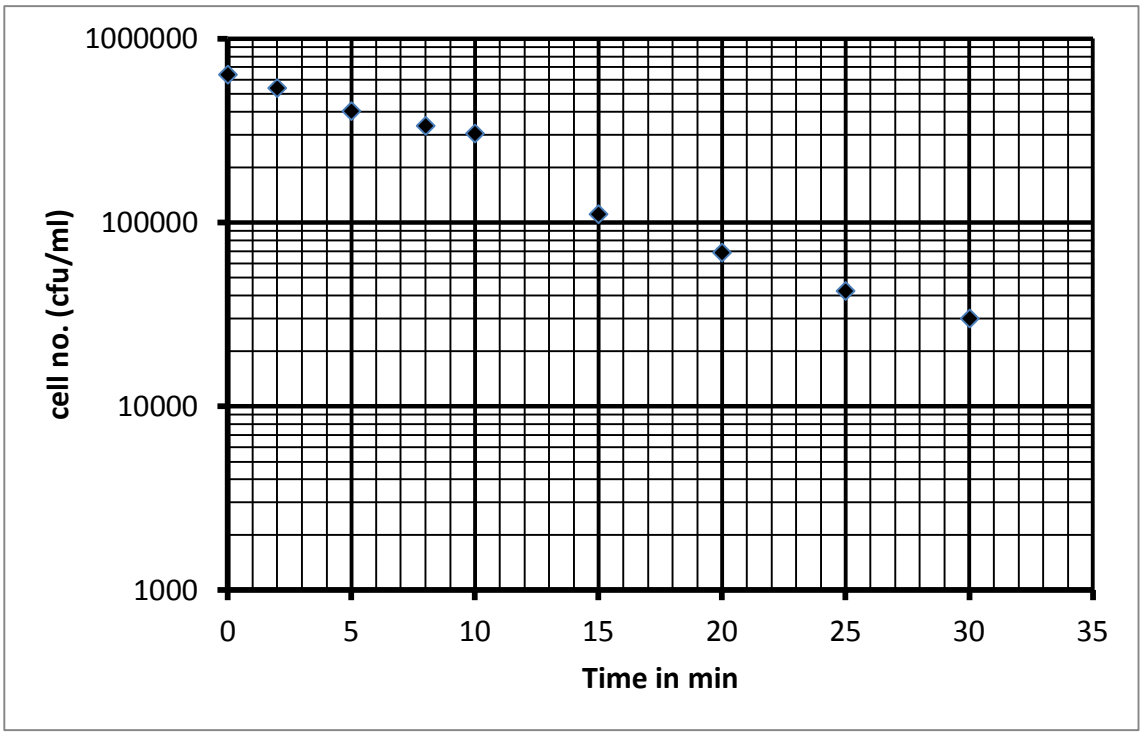
Subject Name: Food and Industrial Microbiology

Time: 10.30am-01.00pm **Total Marks: 70**

Instructions:

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

Q.1	**(a)**	Describe the types of microbial spoilage of dairy products and its causative microorganism.	**07**
	(b)	Describe the mechanism of AB toxin produced by *Vibrio cholerae*.	**07**
Q.2	**(a)**	Discuss the microbial spoilage of canned products? What is the significance of 12D concept for packaging and processing of canned products?	**07**
	(b)	What is lactose intolerance? Describe how Beta galactosidase enzyme can help in preparing products for lactose intolerant people.	**07**
		OR	
	(b)	Describe the microbial spoilage of fruits and vegetables	**07**
Q.3	**(a)**	Describe chemical and physical agents used for the food preservation.	**07**
	(b)	Describe the steps by which bioethanol is produced on large scale.	**07**
		OR	
Q.3	**(a)**	Describe types of pasteurization.	**07**
	(b)	Describe an experiment to screen microorganisms for amylase production. Which reagent is used to visualize the zone of clearance due to amylase activity?	**07**
Q.4	**(a)**	Draw a flowchart to indicate the production of citric acid. Enlist its properties and applications.	**07**
	(b)	What is single cell protein? Describe its significance and production details.	**07**
		OR	
Q.4	**(a)**	Describe microbial growth phases. During which phase primary and secondary metabolite are produced? Give example of each metabolite.	**07**
	(b)	Draw an illustrated diagram depicting various parts of a fermenter.	**07**
Q.5	**(a)**	Draw a flow chart to represent purification and recovery of proteins based on size, polarity, solubility, and binding.	**07**
	(b)	Describe any two techniques used for recovery and purification of fermentation product.	**07**
		OR	
Q.5	**(a)**	Calculate D value for the data depicted in figure given below	**07**



(b) If generation time for a particular microorganism is of 20 minutes, and initial count is 5 cells, how many cells will be there after 200 minutes? **07**

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