Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER–VIII • EXAMINATION – SUMMER • 2014

Subject Code: 181404 **Date: 27-05-2014**

Subject Name: Food Fermentation Technology

Time: 10:30 am - 01:00 pm **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)**	Draw the suitably labeled diagram of fermenter and state ideal characteristics of an industrial fermenter	**07**
	(b)	Give the technological flow diagram for manufacture of beer with description of important steps.	**07**
Q.2	**(a)**	What do you mean by containment? Describe various criteria and process of containment allocation.	**07**
	(b)	Describe steam traps along with their working principles.	**07**
		OR	
	(b)	Write a detailed note on 'materials of construction for industrial fermenter'	**07**
Q.3	**(a)**	Enlist various methods for determination of 'Kla' value and explain any one of them.	**07**
	(b)	Describe how del factor during heating up and cooling down period can be calculated by using Richard's graphical integration method?	**07**
		OR	
Q.3	**(a)**	Describe the concept of 'Del factor' used in sterilization and give mathematical derivation for it.	**07**
	(b)	Write a detailed note on oxygen requirements and oxygen supply for industrial fermentations	**07**
Q.4	**(a)**	Describe various types of spargers used in industrial fermenter	**07**
	(b)	Explain the 'flooding phenomena' in fermenter and write in detail about types of impellers for industrial fermenter.	**07**
		OR	
Q.4	**(a)**	Describe how dissolved oxygen concentration affects on metabolite production during synthesis of amino acids?	**07**
	(b)	Give the flow diagram for preparation of wine with description of fermentation step.	**07**
Q.5	**(a)**	Give the significance of beta-galacotosidase enzyme and explain the genetic regulation phenomena during manufacture of beta-galactosidase enzyme.	**07**
	(b)	Discuss the formulation of fermentation media with significance of individual medium components.	**07**
		OR	
Q.5	**(a)**	What are ideal characteristics of inoculum and state the criteria used for transfer of inoculums to fermentation medium.	**07**
	(b)	Enlist various methods of industrial separation process and describe separation methods based on polarity and solubility principles.	**07**

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