

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2018****Subject Code:2161408****Date:04/12/2018****Subject Name:Food Fermentation Technology****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

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

		MARKS
Q.1	(a) State the importance of antifoaming agents in industrial fermenter	03
	(b) Comment on methods of preservation of microbial cultures used in fermentation industry	04
	(c) Give the detailed classification of wine	07
Q.2	(a) Justify “yeast is a better starter culture than bacteria”	03
	(b) Explain the methods of purification of enzyme considering its molecular weight as major criteria.	04
	(c) Give mathematical derivation for thermal destruction of essential media components during sterilization.	07
	OR	
	(c) Write a flow diagram for wine manufacture and describe fermentation process in wine.	07
Q.3	(a) Define ‘Design Organism’. Give thermal death characteristics of most commonly used ‘design organism’	03
	(b) What is importance of separation and pressing during wine making?	04
	(c) Draw a diagram to depict the functioning of Lac operon. Discuss in reference to cAMP and CAP, the status of operon when both lactose and glucose is available for the bacteria.	07
	OR	
Q.3	(a) What is significance of malting during beer manufacture	03
	(b) Write a note on ‘scale up of batch sterilization process’	04
	(c) Describe the process of inoculum preparation for industrial purposes. What do you understand by “Direct-vat-set” culture used in dairy industry?	07
Q.4	(a) Comment on “synergisms between starter culture” during Yogurt preparation.	03
	(b) Define ‘del factor’ and give it’s mathematical derivation	04
	(c) Write in brief about important chemical components of grapes responsible for wine quality	07
	OR	
Q.4	(a) Explain Richards rapid method for calculation of del factor	03
	(b) Explain how holding time can be calculated at constant sterilization temperature?	04
	(c) Describe formulation and optimization of fermentation media. What are commonly encountered problems during media optimization?	07

- Q.5 (a) What do you mean by strain development and strain improvement? **03**
- (b) Explain the methods of enzyme purification on the basis of its molecular weight. **04**
- (c) What is significance of KLa ? Describe any two methods for determination of 'KLa' value. **07**

OR

- Q.5 (a) Name any three important parts of industrial fermenter with their functions. **03**
- (b) Give flow diagram to depict iso-electric focusing. Explain how it is better than conventional SDS-PAGE. **04**
- (c) Describe the effect of dissolved oxygen concentration on amino acid synthesis by *Brevibacterium flavus* **07**

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