

**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**
- Q.3** (a) Write a detailed note on ‘materials of construction for industrial fermenter’ **07**  
(a) Enlist various methods for determination of ‘K<sub>la</sub>’ 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-galactosidase 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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