

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII • EXAMINATION – SUMMER 2013****Subject Code: 181404****Date: 09-05-2013****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)** What type of materials can be used for construction of laboratory and industrial scale fermentors? **06**
- (b)** Give detailed classification of fermentation processes on the basis of Containment Levels **08**
- Q.2 (a)** Differentiate the following **08**
- i. Brandy and Rum
 - ii. Simple and Fractional distillation
 - iii. Septate and Non-septate mold
 - iv. Continuous still and Rectification still
- (b)** What do you mean by Del factor? Give mathematical derivation for it. **06**
- OR
- (b)** Describe various types of spargers used in commercial fermentors **06**
- Q.3 (a)** Enlist different methods for determination of $K_L a$ value and explain any one in detail. **07**
- (b)** Explain how Del factor is calculated for heating up and cooling down periods? **07**
- OR
- Q.3 (a)** Enlist various points to be considered while designing fermentor and state industrial applications of fermentation process **07**
- (b)** Describe the concept of $K_L a$ Value with its mathematical derivation. **07**
- Q.4 (a)** Explain with the help of growth kinetics how steady state conditions are maintained during continuous fermentations? **07**
- (b)** Describe various types of impellers used in fermentor **07**
- OR
- Q.4 (a)** Write short notes on following **10**
1. Steam traps
 2. Scale up of batch sterilization process
- (b)** Enlist different types of valves used in fermentor and explain any two in detail. **04**
- Q.5 (a)** Write down the detailed classification of industrially important microbes with examples and their applications in food industry. **07**
- (b)** Write down the detailed classification/types of culture media. **07**
- OR
- Q.5 (a)** Explain in detail the steps for preparation of spirit. **08**
- (b)** Define the Terms: 1. Ideal culture 2. Screening 3. Culture media **06**
