

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII EXAMINATION – SUMMER 2016****Subject Code:181404****Date:16/05/2016****Subject Name:Food Fermentation Technology (Department Elective - II)****Time:10:30 AM to 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) Briefly describe the steps of beer production and draw a flow chart of the same. **07**
(b) Draw a diagram to depict parts of a fermenter. Describe the types and functions of sparger and impeller. **07**

- Q.2** (a) Describe the process of containment level allocation for fermentation processes. **07**
(b) Describe the significance of KLa. Describe any two methods for determination of 'KLa' value. **07**

OR

- (b) Describe culture transfers/ passages required to inoculate 100 Liter milk. In what format culture is used in dairy industry for inoculation of such large bulk of milk. **07**

- Q.3** (a) Describe composition of a growth media typically used for microbial growth in fermenter. Also enlist the significance of each ingredient of growth media. **07**
(b) What is the difference between batch, fed batch and continuous fermentation? **07**

OR

- Q.3** (a) Describe an experiment to isolate amylase enzyme. What is the application amylase in food industry? **07**
(b) Give applications of industrial fermentation process and explain the upstream and downstream processing? **07**

- Q.4** (a) Justify the statement "Production of Beta- galactosidase enzyme is regulated by Lac operon under the conditions of presence and/or absence of glucose/lactose". **07**
(b) What do you mean by 'Del factor'? Give mathematical derivation for it. **07**

OR

- Q.4** (a) Draw a flow chart to represent purification and recovery of proteins based on size, polarity, solubility, and binding. Describe separation methods based on polarity and solubility principles. **07**
(b) Describe methods of preservation of cultures for industrial applications. **07**

- Q.5** (a) Give the flow diagram for preparation of wine with description of fermentation step. **07**
(b) How ammonium sulphate precipitation is better than precipitation under acidic or alkaline condition. Explain the concept using an example. **07**

OR

- Q.5** (a) Enlist any 10 fermented products alongwith the starter organism used for its preparation **07**

(b) Write a descriptive note on Iso-electric focusing (2-dimensional electrophoresis) with well-illustrated diagram. **07**
