

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII EXAMINATION – SUMMER 2016

Subject Code:171405

Date:05/05/2016

Subject Name:By-product Utilization and Management (Department Elective - I)

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.

- Q.1** (a) Give the different definitions of waste. Explain the classification of waste with 07 examples.
- (b) Explain oxygen sag curve with its importance. Also draw a neat sketch of deoxygenation and reoxygenation curve. 07
- Q.2** (a) Explain Activated Sludge Process with diagram. 07
- (b) Introduce the following terms briefly. 07
- i. BOD
  - ii. Waste hierarchy
  - iii. Lagoons
  - iv. Influent
  - v. Waste Management
  - vi. Coagulating Agents
  - vii. Sloughing

**OR**

- (b) What are the two methods of flotation? Briefly explain any one of them. 07
- Q.3** (a) Discuss: Fermentative utilization of byproducts from food industries. 07
- (b) Give the merits and demerits of Anaerobic Process. 04
- (c) Write benefits of composting to the Environment & Agriculture. 03

**OR**

- Q.3** (a) Write a short note on membrane process utilized in waste management. 07
- (b) What is ISO 14001? Write its importance. Explain the role of food engineer to implement the ISO 14001 in food industry. 07

- Q.4 (a)** Enlist the main byproducts from dairy industry. Explain any two byproducts from dairy industry with technical process flow chart. **07**
- (b)** What are the different flow characteristics? Write different methods for determination of flow characteristics with its importance in waste water treatment plant design. **07**

**OR**

- Q.4 (a)** Explain KVIC type of biogas plant with neat diagram. **07**
- (b)** Explain different food loss and waste along with the value chain at different stages of processing in food industry. **07**
- Q.5 (a)** Write a short note on Adsorption. **07**
- (b)** What do you mean by ETP? Write its each components with function. **07**

**OR**

- Q.5 (a)** Which type of waste is generated from fruit processing industries? Explain how you utilize the waste and byproducts into valueable products. **07**
- (b)** Enlist the different disposal methods of solid waste management. Explain sanitary landfill method with 5 phases of refuse stabilization. **07**