

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII • EXAMINATION – WINTER 2013****Subject Code: 171405****Date: 03-12-2013****Subject Name: By-Product Utilization and Management****Time: 10:30 TO 01:00****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) Discuss legal and statutory requirements for food waste handling. **07**
(b) What is waste water? Explain how is it generated? State its characteristics and discuss requirement for treating it. **07**
- Q.2** (a) Discuss primary treatment methods of waste water. **07**
(b) Discuss status of by-product utilization of waste. **07**
- OR**
- (b) Discuss fermentation technology of utilizing waste material to produce by-products. **07**
- Q.3** (a) Answer the followings **10**
(1) List components of waste to be measured for analysis.
(2) How will you measure discharge?
(3) List products of fermentation.
(4) Give difference between anaerobic and aerobic digestion of organic waste.
(5) What is BOD?
(b) Explain flow Equalization in detail. **04**
- OR**
- Q.3** (a) Write a short note on : Food waste and by-products related to fruits and vegetable processing. **07**
(b) Discuss in brief about utilization of biomass for production of biogas. **07**
- Q.4** (a) Answer the followings **07**
(1) Food packaging waste
(2) Future trend in food waste handling, treatment and disposal.
(b) Write short notes on **07**
(1) Composting method
(2) Activated sludge process
- OR**
- Q.4** (a) Describe Oxygen sag curve with diagram and explain its utility. **07**
(b) Explain floatation method of waste treatment. **07**
- Q.5** (a) Describe secondary treatments of waste water. **07**
(b) Discuss in brief about products and by-products of milk industry. **07**
- OR**
- Q.5** (a) Write a short note on: Impact of waste water disposal on environment. **07**
(b) Draw and explain Flow diagram of waste water treatment plant. **07**
