

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. - SEMESTER – VII • EXAMINATION – WINTER 2012****Subject code: 171405****Date: 28/12/2012****Subject Name: By-product Utilization and Management****Time: 10.30 am - 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain environmental laws related to food industries. **07**
 (b) Describe by-product utilization of milk industry waste. **07**
Q.2 (a) What is screening? Explain rotary drum screen in detail. **07**
 (b) Explain flow equalization in detail. **07**

OR

- (b) Discuss activated sludge process. **07**
Q.3 (a) Answer the following. **07**
 (i) Give merits and demerits of anaerobic treatment methods.
 (ii) Explain environmental performance of agro food sector.
 (b) (i) Classify secondary waste treatments. **02**
 (ii) What is ISO 140001? **02**
 (iii) Explain composting. **03**

OR

- Q.3** (a) Explain primary treatment methods in brief. **07**
 (b) Explain by-product utilization of less known fruits. **07**
Q.4 (a) (i) Explain need of treating effluent. **03**
 (ii) List waste from fruits and vegetable processing. **02**
 (iii) Explain role of biogas in waste management. **02**
 (b) (i) Discuss oxygen sag curve in detail. **04**
 (ii) Explain standard for disposal of industrial effluent. **03**

OR

- Q.4** (a) Describe fermentative utilization of food waste. **07**
Q.4 (b) Explain type of waste from food industries. **07**
Q.5 (a) Write short notes. (any two) **06**
 (i) Waste water characteristics.
 (ii) Effluent treatment plant.
 (iii) Parameters related to water quality.
 (b) Answer the following. (any four) **08**
 (i) Explain waste utilization of mango processing.
 (ii) What is the use of average daily flow in design?
 (iii) How will you measure discharge of waste water?
 (iv) What is single cell protein?
 (v) What will you measure to know pollution in water?

OR

- Q.5** (a) Answer the following. **07**
 (i) Draw flow chart of effluent treatment plant for dairy.
 (ii) Draw a sketch of KVIC type biogas plant and describe it.
 (b) Define/explain following terms. (any seven) **07**

(i) Treated water	(v) Animal feed
(ii) BOD	(vi) Cider
(iii) Air pollution	(vii) Natural colour
(iv) Whey	(viii) Carbon credit

P.T.O.