

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VIII (NEW) - EXAMINATION – SUMMER 2018****Subject Code: 2181707****Date: 30/04/2018****Subject Name: Instrumentation for Agriculture and Food  
Processing(Departmental Elective - III)****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.

**MARKS**

- Q.1** (a) What are the needs of food quality standards? **03**  
(b) List different engineering properties of soil. Explain any two in brief. **04**  
(c) Enlist different types of biosensors. Explain any three in detail with neat sketch. **07**
- Q.2** (a) Why pH measurement of soil is necessary? **03**  
(b) Explain different methods of soil analysis in brief. **04**  
(c) Describe oil extraction process with flow diagram. **07**
- OR**
- (c) Draw a flow diagram of juice extraction control process and explain in detail. **07**
- Q.3** (a) Draw a flow chart of production for sugar industry. **03**  
(b) Explain ion concentration measurement of soil in brief. **04**  
(c) Write a short note on: PLC application in cold storage and packaging industry. **07**
- OR**
- Q.3** (a) List out various earth moving equipments and farm equipments. **03**  
(b) Depict the significance of water distribution and management in agriculture. **04**  
(c) Explain Pesticides manufacturing and production in detail along with neat sketch. **07**
- Q.4** (a) Discuss upstream and downstream control in brief with respect to canal management. **03**  
(b) Discuss fermenter and control process in brief. **04**  
(c) Write a short note on Greenhouse instrumentation. **07**
- OR**
- Q.4** (a) Draw the neat sketch of hydro power plant. **03**  
(b) Explain auto drip irrigation systems. **04**  
(c) Enlist different parameters for DAM automation. Explain DAM automation in detail. **07**
- Q.5** (a) What is evapotranspiration? **03**  
(b) Brief about infrared & UV bio sensor methods in agriculture. **04**  
(c) Write a short note on Tidal Power. **07**
- OR**
- Q.5** (a) Draw the structural diagram of hydel energy. **03**  
(b) What is smart grid? How it is different from conventional grid system. **04**  
(c) Write a short note on Wind Power. **07**

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