

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VIII(NEW) EXAMINATION – SUMMER 2019****Subject Code: 2181707****Date:09/05/2019****Subject Name: Instrumentation for Agriculture and Food Processing****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) Explain in detail the necessity of instrumentation and control in agriculture and food processing. **03**  
 (b) What is Remote Sensing and how it is useful in agriculture? **04**  
 (c) Explain how SCADA and PLC are applied in packing industry. **07**
- Q.2** (a) Explain Green house **03**  
 (b) State 4 points of advantages and disadvantages of biosensors used for agriculture **04**  
 (c) Explain in detail soil moisture sensor **07**
- OR**
- (c) Explain in detail temperature measurement technique used in agriculture. **07**
- Q.3** (a) Draw a neat process flow diagram of juice extraction plant **03**  
 (b) Explain principle and working of pH meter **04**  
 (c) What is tidal energy? Explain with a neat sketch working of a tidal power plant. **07**
- OR**
- Q.3** (a) Draw a neat process flow diagram of fermentor plant **03**  
 (b) Explain principle and working of conductivity meter **04**  
 (c) What is solar energy? Describe with the help of a neat sketch the working of a solar plant. **07**
- Q.4** (a) Explain evapotranspiration. **03**  
 (b) Explain concept of downstream canal control **04**  
 (c) Explain how SCADA and PLC are applied in cold storage system. **07**
- OR**
- Q.4** (a) Give 3 points of comparison between conventional and non-conventional energy sources **03**  
 (b) Explain concept of upstream canal control **04**  
 (c) Explain in detail measurement and instrumentation of 7 parameter in agro-metrological weather station **07**
- Q.5** (a) How does temperature change effect in green house? **03**  
 (b) List out any 4 instruments used in dairy plant automation and explain principle, construction and working of any 1 among them. **04**  
 (c) Explain in detail automation in drip irrigation **07**
- OR**
- Q.5** (a) How does humidity change effect in green house? **03**  
 (b) List out 4 instruments used in oil extraction plant automation and explain principle, construction and working of any 1 among them. **04**  
 (c) Explain in detail construction, working and automation in cotton picker machine. **07**

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