



**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.

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

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