

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-IV (NEW) - EXAMINATION – SUMMER 2018**

**Subject Code:2141003**

**Date:22/05/2018**

**Subject Name:Electronics Measurement and Instruments**

**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) Define a) Accuracy b) Sensitivity c) Resolution	<b>03</b>
(b) List types of errors. Define any two errors with example.	<b>04</b>
(c) Draw Wien's Bridge diagram and derive equation for the measurement of unknown frequency.	<b>07</b>
<b>Q.2</b> (a) Explain digital techniques for optical isolation.	<b>03</b>
(b) Explain S/H circuit operation.	<b>04</b>
(c) Draw Kelvin double arm bridge and derive equation for the measurement of unknown resistance.	<b>07</b>
<b>OR</b>	
(c) Explain Anderson's Bridge and derive equation for the measurement of unknown inductance.	<b>07</b>
<b>Q.3</b> (a) Draw and explain the block diagram of True RMS Responding Voltmeter.	<b>03</b>
(b) Write a note on lock-in amplifier.	<b>04</b>
(c) Explain the working principle of Function Generator with neat diagram.	<b>07</b>
<b>OR</b>	
<b>Q.3</b> (a) Compare AC and DC Bridges. Draw a Wheatstone bridge and derive equation for the unknown resistance.	<b>03</b>
(b) Draw and explain the basic block diagram of PLC.	<b>04</b>
(c) Draw the block diagram of Digital Frequency Counter and explain it in detail.	<b>07</b>
<b>Q.4</b> (a) Explain various applications of signal conditioning circuit.	<b>03</b>
(b) Explain digital phase measurement technique.	<b>04</b>
(c) Draw the block diagram of Dual Trace Oscilloscope. Explain Alternate Sweep Method with neat diagram.	<b>07</b>
<b>OR</b>	
<b>Q.4</b> (a) Draw the block diagram of Square Wave and Pulse Generator.	<b>03</b>
(b) Draw and explain the working principle of LVDT.	<b>04</b>
(c) What is the function of Delay Line in CRO? Enlist the types of delay line. Explain all in detail with neat diagram.	<b>07</b>
<b>Q.5</b> (a) Write short note on: Load Cell	<b>03</b>
(b) What do you mean by Transducer? Enlist the types of strain gauges. Explain any two types of strain gauges in detail with neat diagram.	<b>04</b>
(c) Draw and explain the block diagram of Data Acquisition system.	<b>07</b>
<b>OR</b>	
<b>Q.5</b> (a) Write short note on: Hall Effect Transducer	<b>03</b>
(b) Explain the basic principle of Thermocouple. Explain practical Thermocouple with neat diagram.	<b>04</b>
(c) Draw and explain the block diagram of Digital Storage Oscilloscope.	<b>07</b>