

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-III (New) EXAMINATION – WINTER 2015**

**Subject Code:2130903****Date:29/12/2015****Subject Name: Electrical Measurements and Measuring Instruments****Time: 2:30pm to 5:00pm****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>	<b>Short Questions</b>	<b>14</b>
	1 Define accuracy.	
	2 Define precision.	
	3 Define sensitivity.	
	4 Define resolution.	
	5 Define Indicating Instruments.	
	6 Define recording Instruments.	
	7 Define Integrating Instruments.	
	8 State methods for measurements of low resistances.	
	9 State methods for measurements of medium resistances.	
	10 State methods for measurements of high resistances.	
	11 Give examples of analog transducers.	
	12 State applications of hall effect transducers.	
	13 Define telemetry.	
	14 Define creeping.	
<b>Q.2</b>	(a) State and explain types of errors in an instruments.	<b>03</b>
	(b) Explain the controlling systems used in instruments.	<b>04</b>
	(c) Explain the construction , working , torque equation , advantages and dis-advantages of PMMC instrument with neat diagram.	<b>07</b>
	<b>OR</b>	
	(c) Explain the construction , working , torque equation , advantages and dis-advantages of Moving Iron instrument with neat diagram.	<b>07</b>
<b>Q.3</b>	(a) Explain the damping systems used in instruments.	<b>03</b>
	(b) Explain DMM with schematic diagram.	<b>04</b>
	(c) Explain the construction , working , torque equation , advantages and dis-advantages of Electrodynamometer type instrument with neat diagram.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Explain digital storage oscilloscope with block diagram.	<b>03</b>
	(b) Explain construction & operation of Hot wire instruments.	<b>04</b>
	(c) Derive the bridge balance equation of maxwell's bridge and also provide advantages , dis-advantages & limitations of it.	<b>07</b>
<b>Q.4</b>	(a) Give advantages , limitations and applications of Wheatstone bridge	<b>03</b>
	(b) Explain CT and PT.	<b>04</b>

- (c) Explain the construction , working , torque equation , advantages and dis-advantages of single phase induction type energymeter with neat diagram. **07**

**OR**

- Q.4** (a) Explain Piezo electric transducer. **03**  
(b) Explain electrostatic instrument. **04**  
(c) Derive the bridge balance equqtion of hay's bridge and also provide advantages & dis-advantages of it. **07**

- Q.5** (a) Explain strip chart recorder. **03**  
(b) Explain LVDT. **04**  
(c) Derive the bridge balance equqtion of anderson's bridge and also provide advantages , dis-advantages & limitations of it. **07**

**OR**

- Q.5** (a) State applications of Power analyzer. **03**  
(b) Explain Megger. **04**  
(c) Explain the construction , working , advantages and dis-advantages of RTD with neat diagram. **07**

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