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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (NEW) - EXAMINATION – SUMMER 2018

Subject Code:2130903 Date:25/05/2018

Subject Name:Electrical Measurement and Measuring 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.**

			MARKS
Q.1	**(a)**	Define Accuracy	**03**
	(b)	Describe how to make extension of range of ammeter.	**04**
	(c)	Explain the principle of operation and construction of RTD.	**07**
Q.2	**(a)**	Explain CT and PT.	**03**
	(b)	Explain harmonic analyzer.	**04**
	(c)	How the effect of contact resistance and lead resistance eliminated by Kelvin's double bridge? Also derive the balance conditions.	**07**
		OR	
	(c)	Explain construction and working of permanent magnet moving coil instrument with diagram. Also derive the torque equation.	**07**
Q.3	**(a)**	Explain principle of operation of thermo couple instrument	**03**
	(b)	Explain block diagram of a general telemetry system	**04**
	(c)	Explain d'Sauty's Bridge with phasor diagram under balance conditions.	**07**
		OR	
Q.3	**(a)**	Explain strip chart recorders.	**03**
	(b)	Explain Electrodynamometer type wattmeter.	**04**
	(c)	What is Hall effect? Describe construction, working principle and applications of hall effect transducer.	**07**
Q.4	**(a)**	List advantages and disadvantages of Electrostatic instruments.	**03**
	(b)	Explain various effects with which the deflecting torque is produced.	**04**
	(c)	Explain Maxwell's inductance-capacitance bridge for measurement of inductance. Derive bridge balance equation and draw vector diagram.	**07**
		OR	
Q.4	**(a)**	Explain digital voltmeter with block diagram	**03**
	(b)	Describe the various types of Errors in measurement system.	**04**
	(c)	Describe the constructional detail of attraction type moving iron instruments with help of diagram. Also derive equation of deflection if spring control is used.	**07**
Q.5	**(a)**	With the help of block schematic explain basic telemetry system.	**03**

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	(b)	Distinguish clearly between accuracy and precision.	**04**
	(c)	Explain any one type of hygrometer and state its advantage and disadvantages.	**07**

OR

Q.5	**(a)**	State the applications of power analyzers.	**03**
	(b)	What is difference between analog voltmeter and digital voltmeter.	**04**
	(c)	Explain AC tachometer generator with neat diagram and write limitation of it.	**07**

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