Course Code: 1950443 Roll No: MLRS- R19

MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

III B.Tech I Sem Regular End Examination, February 2022

Electronic Measurements and Instrumentation

(ECE)

Time: 3 Hours. **Max. Marks: 70**

Note: 1. Question paper consists: Part-A and Part-B.
2. In Part – A, answer all questions which carries 20 marks.
3. In Part – B, answer any one question from each unit.
Each question carries 10 marks and may have a, b as sub questions.

PART- A

(10*2 Marks = 20 Marks)

1.	a)	List the classification of performance characteristics of an instrument.	2M	CO1	BL1
	b)	Define Arithmetic mean and Average value.	2M	CO1	BL1
	c)	Differentiate between AF wave analyzer and RF wave analyzer.	2M	CO2	BL2
	d)	Define duty cycle and pulse width.	2M	CO2	BL1
	e)	List the major components and features of a CRT.	2M	CO3	BL1
	f)	Write the different controls available on CRO panel.	2M	CO3	BL1
	g)	State LVDT. Write its applications.	2M	CO4	BL1
	h)	Give the advantages and applications of Thermocouples.	2M	CO4	BL1
	i)	Define bridge circuit. Mention its types.	2M	CO5	BL1
	j)	Write the two conditions to be satisfied to make an AC bridge balance.	2M	CO5	BL1

PART- B

(10*5 Marks = 50 Marks)

2	a)	What are the dynamic characteristics of measurement systems? Explain.	5M	CO1	BL4
	b)	With a neat diagram, discuss about DC current meter.	5M	CO1	BL2
		OR			
3	a)	Describe the working principle of DC voltmeter with neat diagram.	5M	CO1	BL2
	b)	Explain the working principle of series ohmmeter with neat diagram.	5M	CO1	BL4
4	a)	Describe briefly about Harmonic distortion analyzer.	5M	CO2	BL2
	b)	Explain the working principle of spectrum analyzer with neat diagram.	5M	CO2	BL4
		OR			
5		With a neat diagram, explain the working of Pulse and Square wave generator.	10M	CO2	BL4

6	a)	Write about different types of CRO probes.	5M	CO3	BL1
	b)	Describe in detail the Lissajous method of frequency measurement.	5M	CO3	BL2
		OR			
7	a)	Compare dual trace and dual beam oscilloscopes.	5M	CO3	BL2
	b)	Briefly explain the different types of storage oscilloscopes.	5M	CO3	BL4
8	a)	What is a strain gauge? Derive the expression for gauge factor.	5M	CO4	BL6
	b)	Classify and explain the different types of transducers.	5M	CO4	BL4
		OR			
9	a)	Discuss about thermocouple.	5M	CO4	BL3
	b)	A copper constantan thermocouple with α = 3.75 * 10-2 mV/^{o}C and β = 4.5 * 10-5 mV/^{o}C. If T_1 = 100 0C and the cold junction T_2 is kept in ice. Compute resulting EMF.	5M	CO4	BL2
10	a)	Briefly explain the working principles and measurement of force.	5M	CO5	BL4
	b)	Explain the measurements of humidity and moisture.	5M	CO5	BL6
		OR			
11		Derive the balance equation Maxwell's bridge for unknown medium resistance.	10M	CO5	BL6

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