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B.E. / B.Tech. DEGREE EXAMINATION, NOV 2019

Second Semester

Electronics and Communication Engineering

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15UEC	209 - BASIC ELECT	RONIC MEASUR	EMENTS	
	(Regulat	ion 2015)		
ation: Three hours			Maximum: 10	00 Marks
	Answer AL	L Questions		
	PART A - (5	x 1 = 5 Marks		
	U 11	e traced to a defect	in the	CO1-R
(a) Random	(b) Systematic	(c) Gross	(d) none of the ab	oove
The use of thermocou	ple meters for ac mea	surement leads to a	scale which is	CO2-R
(a) Linear	(b) Square law	(c) Logarithmic	(d) Expone	ential
· ·				CO3-R
(b) a special RC conn	ection to eliminate str	ay capacitance effe	cts	
(c) an unwanted and u	inintended ground coi	nnection		
(d) a large metal plate	buried in ground con	nected to one corne	er of bridge	
		oltage of the wavef	form in	CO4- R
(a) Average voltage	(b) RMS voltage (c) Peak to peak volt	tage (d) Maximu	m voltage
The audio-frequency is	range of typica	l AF signal ge	nerator	CO5- R
(a) 20Hz to 200kHz		(b) 200Hz to 20k	Hz	
(c) 20Hz to 20kHz		(d) None of the a	bove	
	Which of the following measuring instrument (a) Random The use of thermocout (a) Linear In ac bridge measurer (a) a special RC connoc (b) a special RC connoc (c) an unwanted and ut (d) a large metal plate In terms of the division CRO is	(Regulation: Three hours Answer AL PART A - (5 x) Which of the following types of error can be measuring instrument? (a) Random (b) Systematic The use of thermocouple meters for ac measuring according to the law In according to the limitate structure (b) a special RC connection to eliminate structure (c) an unwanted and unintended ground conducted and unintended ground conducted in	(Regulation 2015) ation: Three hours Answer ALL Questions PART A - (5 x 1 = 5 Marks) Which of the following types of error can be traced to a defect measuring instrument? (a) Random (b) Systematic (c) Gross The use of thermocouple meters for ac measurement leads to a (a) Linear (b) Square law (c) Logarithmic In ac bridge measurements, 'Wagner ground' means (a) a special RC connection to eliminate stray magnetic effects (b) a special RC connection to eliminate stray capacitance effects (c) an unwanted and unintended ground connected to one cornection (d) a large metal plate buried in ground connected to one cornection (c) a large metal plate buried in ground connected to one cornection (d) a large woltage (e) RMS voltage (f) Peak to peak voltage (g) Peak t	Answer ALL Questions PART A - (5 x 1 = 5 Marks) Which of the following types of error can be traced to a defect in the measuring instrument? (a) Random (b) Systematic (c) Gross (d) none of the above the traced to a scale which is (a) Linear (b) Square law (c) Logarithmic (d) Expone In ac bridge measurements, 'Wagner ground' means (a) a special RC connection to eliminate stray magnetic effects (b) a special RC connection to eliminate stray capacitance effects (c) an unwanted and unintended ground connected to one corner of bridge In terms of the division on screen, the voltage of the waveform in CRO is (a) Average voltage (b) RMS voltage (c) Peak to peak voltage (d) Maximus The audio-frequency range of typical AF signal generator is (a) 20Hz to 200kHz (b) 200Hz to 20kHz

PART - B (5 x 3= 15 Marks)

6. Draw the basic blocks of a generalized instrumentation system. CO1- R

7. Define the different essential torques in indicating instruments. CO2- R

- 8. Classify the different types of resistance measurement bridge and mention its use?
- 9. Write the significance of transducer?

CO₄- R

10. What are the types of Spectrum Analyzer and write its uses?

CO5-R

$PART - C (5 \times 16 = 80 \text{ Marks})$

11. (a) (i) The following readings were taken of a certain length: 1.34, 1.38, CO1-U (8) 1.56,1.47,1.42,1.44,1.53,1.48,1.40,1.59 mm.

Calculate,

- (a) Arithmetic mean
- (b) Average deviation
- (c) standard deviation and
- (d) variance
- (ii) Explain the types of Static characteristics of measuring CO1-U (8) instruments.

Or

(b) What is standard? Explain the different types of standards. CO1-U (16)

12. (a) Describe the construction and working of a PMMC instrument & CO2-U (16) derive its torque equation with neat sketch..

Or

(b) Draw and explain the block diagram of digital multimeter. CO2- U (16)

13. (a) Quote the procedure of measuring a low resistance with help of CO3-U (16) suitable bridge. Derive the relation to find unknown resistance

Or

- (b) Obtain an expression for measurement of unknown inductance using CO3-U (16) suitable bridge with a neat circuit diagram.
- 14. (a) With a help of simplified block diagram, explain the construction and CO4- U (16) operating principle of general purpose Cathode Ray Oscilloscope also list its application.

Or

- (b) Describe the working of digital storage oscilloscope with the neat CO4- U (16) sketch and write how it is differ from analog storage oscilloscope.
- 15. (a) Classify the different types of frequency synthesizer. Draw and CO5-U (16) explain the block diagram of the frequency synthesized signal generator in details.

Or

(b) With neat diagram explain the block diagram of sweep-frequency CO5- U (16) generator and spectrum analyzer in details