Question Paper

Exam Date & Time: 05-Mar-2021 (09:00 AM - 12:00 PM)

MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

THIRD SEMESTER B.TECH(Electronics and Instrumentation) END SEMESTER EXAMINATIONS, MAR 2021

ELECTRONIC MEASUREMENTS [ICE 2153]

Marks: 50 **Duration: 180 mins.**

A

Answer all the questions.

Instructions to Candidates:

Missing data may be suitably assumed

1) State any two errors that can occur during the measurement of resistance, capacitance and inductance using bridges and suggest suitable remedy for the same. (2)

A)

B) Using necessary equations and phasor diagram, prove that the number of revolutions in a single phase induction type energy meter is proportional to the energy consumed. (3)

C) In the AC bridge shown in Fig.Q1C, under the balance conditions, obtain the values of the suitable combination of components used for Z. (3)

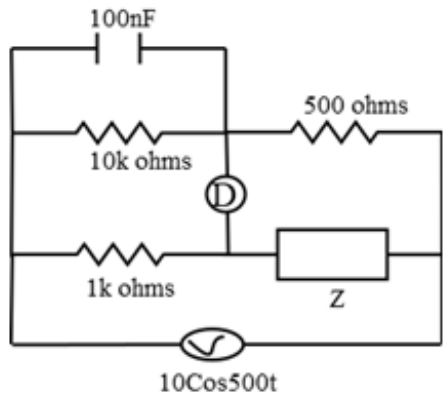

Fig. Q1C

D) Derive the expression for the deflection in an electrostatic deflection system of a CRO. Hence obtain the expression for magnetic deflection sensitivity. (2)

2) Explain shortcomings of the passive matrix LCD display with suitable example. State the measures used to overcome these shortcomings. (4)

A)

B) Draw the block diagram of cathode ray tube and explain its functions. (3)

C) Explain the working of DSO with block diagram and describe the various modes of operation. (3)

3) (4)

	A)	What are the uses of Q-meter and explain the procedure of measuring quality factor of unknown components connected in series to Q-meter with necessary equations.	
	B)	4-bit successive approximation technique is used to convert 11.2V to binary output with Vref as 16 volts. Explain the conversion process with required steps and block diagram.	(4)
	C)	What is sampling? Draw different types of sampling circuits.	(2)
4)		Explain working of digital frequency meter along with operation of gated control flip-flop used for the same.	(4)
	A)		
	B)	Explain the principle of working of a magnetic tape recorder. What are the basic components and their functions?	(3)
	C)	Explain different types of marking mechanism used in strip chart recorder.	(3)
5)		What is wave analyzer? Describe the construction and working of wave analyzers for audio-frequency and MHz ranges.	(5)
	A)		
	B)	Distinguish principle of working of a spectrum analyzer and wave analyzer.	(2)
	C)	Draw the block diagram of a spectrum analyzer. How is the spectrum of a given signal displayed on spectrum analyzer?	(3)

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