

TEC-303

1239

Printed Pages : 4

Paper ID & Roll No. to be filled in your Answer Book

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B.Tech. II Year (III Sem.)
Odd Semester Examination, 2015
Electronic Measurement and Measuring Instruments

*Time: 3 Hours]**[Max. Marks: 100***Answer Any Four** (4x5=20)

- 1.1 What is systematic errors? Explain any two in brief.
- 1.2 Describe construction and working of a ballistic galvanometer. Explain the difference in constructional details of a ballistic galvanometer and d'Arsonval galvanometer.
- 1.3 Prove that in ballistic galvanometer, the charge is proportional to first swing of the moving coil.
- 1.4 Describe the different methods used for calibration of a ballistic galvanometer.
- 1.5 Explain why PMMC instruments are the most widely used instruments. Discuss their advantages and disadvantages.

Answer Any Four

(4x5=20)

- 2.1 Explain with neat diagram the operation of a series type ohmmeter? Explain with neat diagram how an ohmmeter is calibrated?
- 2.2 Explain with neat diagram the operation of a shunt type ohmmeters.
- 2.3 Draw the circuit of a Wheatstone bridge for measurement of unknown resistances and derive the condition for balance.
- 2.4 Derive an expression for unknown resistance measured using loss charge method.
- 2.5 Explain how Wien's bridge can be used for measurement of unknown frequencies. Derive the expression for frequency in terms of bridge parameters.

Answer Any Two

(2x10=20)

- 3.1 Explain the operating principle of voltage to frequency type DVM.
- 3.2 Explain with neat diagram, the basic principle and operation of successive approximation type digital voltmeters.

3.3 Define data acquisition system and draw the functional block diagram of typical DAQ.

Answer Any Two

(2x10=20)

4.1 Draw the block diagram of a CRO and explain the different components.

4.2 What are Lissajous patterns? From the Lissajous patterns, how can the frequency and the phase difference be measured?

4.3 What are the advantages of dual trace over double beam for multitrace oscilloscope? Explain the working of dual trace CRO with the help of the proper block Diagram

Answer Any Two

(2x10=20)

5.1 Draw the circuit diagram of a Hartley oscillator and explain its operation.

5.2 Draw the circuit diagram of a Colpitts oscillator and explain its operation.

5.3 Draw a circuit diagram of a suitable multivibrator. How does it generate square wave?

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