R13

B.Tech III Year II Semester (R13) Supplementary Examinations December 2016
ELECTRONIC MEASUREMENTS & INSTRUMENTATION
(Electronics & Communication Engineering)

Time: 3 hours   Max. Marks: 70

PART - A
(Compulsory Question)
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1   Answer the following: (10 X 02 = 20 Marks)

(a)   A 500 Volts voltmeter is accurate within +/- 1% at full scale. Calculate the limiting error when the instrument is used to measure a voltage of 200 Volts.

(b)   What are the limitations of thermo couples used in RF ammeter?

(c)   What is the function of X – Y mode on CRO front panel?

(d)   What are the applications of CRO?

(e)   What are the basic characteristics of pulse?

(f)   What is the function of spectrum analyzer?

(g)   If the bridge arms are connected with R_1 = 2.2 K, R_2 = 3.9 K, R_3 = 10 K, find R_4.

(h)   Why Wagner ground connection is used in bridges?

(i)   Name one passive and active sensors.

(j)   Categorize photo electric transducers.

PART - B
(Answer all five units, 5 X 10 = 50 Marks)

UNIT - I

2   Design an aryton shunt to provide ammeter with current range of 0 – 1 mA, 10 mA, 50 mA and 100 mA. A D'arsonval movement with an internal resistance of 100 ohms and full scale current of 50 uA is used.

OR

3   With necessary block diagram, explain the function of differential voltmeter.

UNIT - II

4   Derive the expression for deflection sensitivity of CRT.

OR

5   Explain the working principle of sampling and storage oscilloscopes.

UNIT - III

6   Draw the block diagram of logic analyzer and explain its operation.

OR

7   Draw the block diagram of pulse generator and explain its operation.

UNIT - IV

8   Draw the circuit of Hay bridge and explain its utility, also derive expressions for unknown components.

OR

9   Draw the circuit of Schering bridge and explain its utility, also derive expressions for unknown components.

UNIT - V

10   Explain strain construction principle and also derive expression for gauge factor.

OR

11   Explain the functioning of the types of free-summing devices.

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