25/05/19 (AN)

B.E Full Time Degree END SEMESTER EXAMINATIONS, April/May2019

Fourth Semester, EEE / R- 2012

EE 8404 Electrical Measurements and Instrumentation

Time: 3 Hours

Max. Marks: 100

Answer ALL Questions

PART – A (10 x 2 = 20 Marks)

1. What is the importance of Instrument calibration?
2. Compare between repeatability and reproducibility.
3. What is cause and control on eddy current damping in meters?
4. Discuss briefly the construction circuit for design of "voltage range" in analog voltmeter.
5. Explain the terms: magnetic potential and remanence.
6. If 2 wattmeters method are used to measure power input to a 1.5kV,50Hz, 3 phase motor running in full load at an efficiency of 85%, with total wattmeter reading as 330kW, Ø=41.74°, determine the power factor and line current and output power.
7. State how e.m.f is measured using polar potentiometers.
8. What is meant by calibration of Bridge circuit?
9. Write short note on Strain gauge sensor.
10. How are capacitors used for Pressure measurement sensing?

PART – B (5 x 16 = 80 Marks)

11.i) Why Digital CRO are better than analog CRO .With neat figures explain the constructional features & working principle of a two channel automated digital CRO based on processor control .

(ii).Discuss on how the DSO helps to measure frequency of a 20ms and 2 us varying sinewave signal during Data Acquisition? [2+10+4]

12a) Explain the static and dynamic characteristics through first order modeling of measuring instruments. [8+8]

(OR)

12b) With neat figures explain the operating principle & advantages of a Permanent magnet moving coil instrument. List the errors in these instruments? [12+4]

13 a) With giving their principle of operation write briefly on the following: [8+8]

i) Clip on Current Transformer

(ii) magnetic characteristics & iron loss by use of B-H Curve .

(OR)

13b) With neat figures write briefly on any 'TWO' of the Following by giving their principle of operation:

(i) three phase wattmeter
(ii) Single phase energymeter [8+8]
(iii) Capacitive potential transformer

14a) With neat figures explain principle of operation with Balance condition for the (i)Wheatstone bridge & (ii) the wagner earthing device. [8+8]

(OR)

14b) With neat figures explain principle of operation with Balance condition for the (i)Maxwell bridge & (ii) the Schering Bridge. [8+8]

15a) Write Briefly on any 'TWO' of the following: [8+8]

i) LVDT
ii) Thermocouple
iii) Digital transducers

(OR)

15b) Explain with neat sketch about one type of velocity measure & controlling system for a real time process using one concept of automation technique. [16]