KUMARAGURU
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Register Number: ……..

B.E DEGREE EXAMINATIONS: JUNE 2015

(Regulation 2009)

Third Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

EEE264 : Electrical Measurements & Instruments

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. A galvanometer can be used for measuring current and voltage of a circuit by

   a) Fluid shunt for measuring current and high resistance in series for voltage
   b) Connecting high value of resistance in series only
   c) Shunt only
   d) Without shunt and series resistance

2. A moving coil permanent magnet instrument can be used as _____ by using a low resistance shunt.

   a) Voltmeter
   b) Ammeter
   c) Flux-meter
   d) Ballistic galvanometer

3. For handling greater currents induction watt meters are used in conjunction with

   a) Potential transformers
   b) Power transformers
   c) Current transformers
   d) Step-down transformers

4. The energy meter used for measuring energy of a dc circuit is

   a) Induction type
   b) Electrostatic type
   c) Dynamometer type
   d) Ampere hour meter

5. To measure a resistance with the help of a potentiometer it is

   a) Not necessary to standardize the potentiometer
   b) Necessary to standardize the potentiometer
   c) Necessary to use a volt ratio box in conjunction with the potentiometer
   d) Not necessary to use a volt ratio box in conjunction with the potentiometer

6. Basically a potentiometer is a device for

   a) Measuring a current
   b) Comparing two voltages
   c) Comparing two currents
   d) Measuring a voltage

7. Kelvin double bridge is best suited for the measurement of

   a) Inductance
   b) Capacitance
   c) Low resistance
   d) High resistance

8. Megger is an instrument used for the measurement of

a) Medium resistances b) Low resistances

c) Leakage current d) High resistances and insulation resistance

9. The most commonly used null deflector in a power frequency ac bridge is a

a) Vibration galvanometer b) D'Arsanval galvanometer

c) Ballistic galvanometer d) Tachometer

10. In an Anderson bridge the unknown inductance is measured in terms of

a) Known inductance and resistance b) Known capacitance and resistance

c) Known resistance d) Known inductance

PART B (10 x 2 = 20 Marks)

11. State the working principle of D'Arsonval galvanometer.
12. Define calibration.
13. State phantom loading.
14. How the voltage and current coils are connected in induction type energy meter with the load?
15. Differentiate between dc and ac potentiometers.
16. List any two applications of potential transformers.
17. Name two methods to measure low resistance.
18. Define Megger.
19. Which are used as detectors in the a.c. bridges?
20. List the errors in an AC bridge.

PART C (5 x 14 = 70 Marks)

21. a) Explain the construction and working principle of attraction type repulsion type moving iron instruments.

(OR)

b) i) Illustrate the construction and working principle of PMMC instruments. (10)

ii) Derive the torque equation of PMMC instruments. (4)

22. a) With neat sketch, explain the principle of operation of a single phase energy meter.

(OR)

b) Demonstrate the construction and working of Electrodynamometer type wattmeter.

23. a) Outline the working principle and operation of a typical AC potentiometer with a neat diagram.

(OR)

b) Elucidate the working principle and operation of a typical DC potentiometer with a neat diagram.

24. a) Explain the construction and working of Wheatstone bridge.

(OR)

b) Examine the construction and working of Kelvin double bridge.

25. a) Analyze the construction and working of Schering's bridge with its phasor diagram.

(OR)

b) Illustrate the principle of operation of A.C. galvanometer.

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