Register Number:……..

B.E. DEGREE EXAMINATIONS: JUNE 2013

Third Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

EEE264: Electrical Measurements & Instruments

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

Answer ALL Questions:-

PART A (10x1=10 Marks)

1. A 1mA ammeter has a resistance of 100 Ω. It is to be converted to a 1mA ammeter. The value of shunt resistance is:

   a. 0.001Ω b. 0.1001 Ω c. 100000 Ω d. 100 Ω

2. Horizontally mounted moving iron instruments use

   a. Eddy current damping b. Electromagnetic damping

   c. Fluid friction damping d. Air friction damping

3. In an electrodynamometer type of wattmeter:

   a. The current coil is made fixed

   b. The pressure coil is fixed

   c. Current coil or pressure coil can be made fixed

   d. Both the coils should be movable

4. In an induction type of meter, maximum torque is produced when the phase angle, between the two fluxes is:

   a. 0° b. 45° c. 60° d. 90°

5. The burden of current transformers is expressed in terms of

   a. Secondary winding current

   b. VA rating of transformer

   c. Voltage, Current and Power factor of secondary winding current

   d. None of the above

6. A potentiometer is basically a

   a. Deflection type instrument b. Null type instrument

   c. Deflection as well as null type instrument d. Digital instrument

7. In a series type ohmmeter the zero adjustment should be done

   a. By changing the value of series resistance

   b. By changing the value of shunt resistance connected across the meter movement

   c. By changing both series as well as the shunt resistance

   d. By changing the battery voltage

8. A Megger is used for measurement of

   a. Low value resistances

   b. Medium value resistances

   c. High value resistances, particularly insulation resistance

   d. None of the above

9. Schering bridge is used for the measurement of

   a. Inductance b. Capacitance c. Resistance d. Mutual Inductance

10. Hay's bridge is not suited for measurement of coils having Q

    a. Less than 10 b.More than 10 c. Cannot be found d. More than 20

PART B (10 x 2 = 20 Marks)

11 Compare moving coil and moving iron instruments.

12 How the voltage and current coils are connected in induction type energy meter with the Load?

13 Mention the different types of wattmeters used for power measurement.

14 Define Phantom loading.

15 Define ratio error in current transformers.

16 List four applications of potentiometer.

17 What is Megger?

18 Name two methods to measure low resistance.

19 Define Q factor of a coil.

20 Mention the advantages of Maxwell – wein bridge.

PART C (5x14=70 Marks)

21. a) Illustrate and explain the principle and construction of PMMC instruments.

(OR)

b) Describe the principle of operation of Rectifier type of instrument with necessary circuit diagram.

22. a) Explain with neat sketch the construction and working principle of Electrodynamometer type wattmeter.

(OR)

b) With a neat figure explain the principle of operation of a single phase energy meter.

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

(OR)

b) Write short notes on.

i) Current Transformer

ii) Potential Transformer

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

(OR)

b) Elucidate the operation of ohmmeter and its types in detail.

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

(OR)

b) Explain the construction and working of Maxwell Bridge with derivation.

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