DRONACHARYA GROUP OF INSTITUTIONS, GREATER NOIDA
Questions

Subject : EMMI   Subject Code: NEE-302   Branch: EEE

1. What are various methods of measurements?
2. What do you understand by the terms " Accuracy"?
3. Define Transformation ratio and Nominal ration of Instrument Transformer.
4. What are different methods for measurements of Self- Inductance and Capacitance?
5. Explain Q Factor and Dissipation Factor.
6. What is Instrument Transformer?
7. Define Transformation ratio and Nominal ration of Instrument Transformer.
8. What are different methods for measurements of Self- Inductance and Capacitance?
9. Explain Q Factor and Dissipation Factor.
10. What are applications of AC potentiometer?
11. A PT , ratio 1000/100 V, has the following constants: Primary resistance = 94.5Ω, Secondary resistance = 0.86Ω, Primary reactance = 66.2Ω, Total equivalent reactance = 110Ω, No load current = 0.02 A at 0.4power factor. Calculate (i) phase angle error at no load (ii) burden in VA at unity power factor at which the phase angle will be zero.
12. Explain construction and working of Three- Phase Electrodynamometer Power Factor meter.
13. Explain the principle of working of a Kelvin's Double Bridge and explain how the effect of contact resistance and resistance of leads are eliminated.
14. Explain Loss of Charge method for measurement of Insulation Resistance of Cable.
15. A Cable is tested by Loss of charge method using a ballistic galvanometer with following results: Discharged immediately after electrification, deflection 200 divisions. Discharged after 30 s and after electrification deflection 126 divisions. When the parallel with a resistance of 10MΩ, deflection 100 divisions. Calculate the insulation resistance of Cable.
16. Aflux meter is connected to a search coil of 100 turns and the mean area of the coil is 5 cm^2. The search coil is placed at the centre and a standard solenoid 1 m long uniformly wound with 800 turns. When a current of 5A is reversed, a deflection of 10 scale divisions is obtained with the flux meter. Calculate the calibration constant of the instrument in Wb- turns per division.
17. Explain the Drysdale- Tinsley Polar Type AC potentiometer.
18. Explain Step by Step method for measurement of hysteresis loop.
19. An Owen's Bridge is used to measure the properties of a sample of sheet steel at 2kHz. At balance arm ab is test specimen, arm bc is R_3=100Ω, arm cd is C_4=0.1μF and arm da is R_2 is=834 Ω in series with C_2=0.124 μF. Calculate effective impedance of the specimen.
20. Explain the working of Ramp Type Digital Voltmeter.
21. Explain construction and working of Electromechanical Type frequency meter.
22. A coordinate type potentiometer is used for determination of impedance of a coil and the results obtained are: Voltage across a 1.0 Ω resistor in series with the coil is 0.238 V on in-phase dial and -0.085 V on quadrature dial. Voltage across a 10:1

potential divider used with the coil 0.3375 V on in-phase dial and 0.232 V on quadrature dial. Calculate the resistance and reactance of the coil.

23. An electrostatic voltmeter reading upto 2 kV is controlled by a spring with spring constant of 5×10^{-6} N-m/ radian has a full scale deflection of 90^0.The capacitance at zero voltage is 15pF. What is the capacitance when the pointer indicates 2kV?

24. Discuss about construction and working of CRO.

25. A current transformer of turn ratio 1: 199 is rated as 1000/5 A, 25VA. The core loss and magnetizing component of the primary current are 4 and 7 A under rated conditions. Determine the phase angle and ratio errors for the rated burden and rated secondary current at 0.8 p.f. lagging and 0.8 p.f. leading. Neglect the resistance and leakage reactance of secondary winding.

26. How is Q meter used to measure the characteristic impedance of Transmission line.

27. A Cable is tested by Loss of charge method using a ballistic galvanometer with following results: Discharged immediately after electrification, deflection 200 divisions. Discharged after 30 s and after electrification deflection 126 divisions. When the parallel with a resistance of 10MΩ, deflection 100 divisions. Calculate the insulation resistance of Cable.

28. Prove from the first principal that electrodynamometer type instruments give deflection which is proportional to the product of the two currents flowing through fixed and the moving coils and the rate of change of mutual inductance.

29. Derive the expression for Transformation ratio and Phase angle for CT.

30. Explain Step by Step method for measurement of hysteresis loop.

31. An Owen's Bridge is used to measure the properties of a sample of sheet steel at 2kHz. At balance arm ab is test specimen, arm bc is $R_3=100Ω$, arm cd is $C_4=0.1μF$ and arm da is R_2 is=834 Ω in series with $C_2=0.124$ μF. Calculate effective impedance of the specimen.

32. Explain the working of Digital frequency meter.

33. Explain construction and working of Electromechanical Type frequency meter.

34. A coordinate type potentiometer is used for determination of impedance of a coil and the results obtained are: Voltage across a 1.0 Ω resistor in series with the coil is 0.238 V on in-phase dial and -0.085 V on quadrature dial. Voltage across a 10:1 potential divider used with the coil 0.3375 V on in-phase dial and 0.232 V on quadrature dial. Calculate the resistance and reactance of the coil.