

(OLD COURSE) Q.P. Code : 4557

(3 Hours)

[Total Marks : 100

- N.B. :** (1) Question No.1 is **Compulsory**.
(2) Solve any **four** out of remaining six questions.
(3) Figures to the right indicate full marks.
(3) Assume data if necessary.

1. (a) Explain a suitable bridge to measure low resistance. 4
(b) Explain different types of error in electrical measurement. 4
(c) Explain in brief ratio and phase angle error in potential transformer. 4
(d) Explain capacitor dielectric loss angle and Q factor 4
(e) Explain A.C power loss measurement in sheet steel using Epstein square method . 4
2. (a) Derive the dimension of charge, current, potential difference (emf) capacitance, resistance & inductance in electrostatic system units. 10
(b) Derive the equations under balance condition for Schering Bridge and draw the phasor diagram . discuss the advantage and disadvantage of bridge. 10
3. (a) Explain how wattmeter can be calibrated using D.C crompton's type of potentiometer hence explain phantom loading 10
(b) Describe the construction and working of vibration galvanometer and explain how this galvanometer is tuned. 10
4. (a) Explain the construction of electro dynamometer type of wattmeter and justify that at balance deflection is proportional to power being measured. 10
(b) Describe the construction and working of principles of moving iron instruments and hence Derive the equations for deflection if instrument is spring control. 10
5. (a) Explain with neat circuit diagram and plot for determinations of B-H curve using step by step method. 10
(b) Explain Diamagnetism, paramagnetism and ferromagnetism in connection with magnetic measurement. 10

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6. (a) Explain the working principle and theory of induction type energy meter and hence derive that deflection is proportion to energy consumed 10
- (b) Explain: (i) power factor meter (ii) Frequency meter. 10
7. Write S.N. for any four 20
- (i) Weston type syncroscope.
 - (ii) Measurement of mutual inductance
 - (iii) Megger.
 - (iv) Flux meter.
 - (v) Indicating, recording & integrating instruments.
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