

22325

12223

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Illustrate your answer with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data, if necessary.
- (5) Use of Non-programmable Pocket Calculator is permissible.
- (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following: **10****
- State significance of measurement.
 - List difference between D.C. and A.C. voltmeters.
 - State advantages of P.M.M.C. instrument.
 - State any two benefits of electronic energy meter.
 - Draw a neat sketch of wattmeter connection.
 - List out methods used for measurement of medium resistance.
 - Sketch internal structure of CRT.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) List out comparisons between deflection and null type instrument.
 - b) State errors occurring in measurement of electrical power.
 - c) Explain with neat diagram construction and working of induction type energy meter.
 - d) A 220V, 5A, d.c. energy meter is tested at its marked ratings. The resistance of the pressure circuit is 8800Ω and that of current coil is 0.1Ω . Calculate the power consumed when testing the meter with direct loading arrangement.
- 3. Attempt any THREE of the following:** **12**
- a) State difference between analog and digital instrument.
 - b) Explain working of clamp-on-meter.
 - c) State the necessity and construction of earth tester with suitable sketches.
 - d) List out various frequency meter and explain any one of them.
- 4. Attempt any THREE of the following:** **12**
- a) Compare the analog ammeter and voltmeter on the basis of following points:
 - i) Connection in the circuit.
 - ii) Resistance.
 - iii) Circuit symbol.
 - iv) Extension of range.
 - b) Explain application of measurement system.
 - c) Two wattmeters connected to measure the input to a balanced 3-ph circuit indicate 2000 watt and 500 watt respectively. Find the power factor of circuit, when both reading are positive.
 - d) State need and construction of megger with suitable sketches.
 - e) Explain with neat diagram working of function generator.

5. Attempt any TWO of the following:**12**

- a) Explain with labelled sketches the construction and working of synchroscope.
- b) Explain the working of PMMI instrument with neat diagram.
- c) Explain working of maximum demand indicator with a neat sketch.

6. Attempt any TWO of the following:**12**

- a) Describe with sketches the various blocks and working of signal generator.
 - b) Explain the working principle of phase sequence indicator with relevant constructional diagram.
 - c) Describe the working of 1-phase electronic energy meter with relevant sketch and compare it with 3-phase energy meter.
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