

22325

12425

03 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.  
(2) Answer each next main Question on a new page.  
(3) Illustrate your answers with neat sketches wherever necessary.  
(4) Figures to the right indicate full marks.  
(5) Assume suitable data, if necessary.  
(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

- a) Define :
  - i) Accuracy
  - ii) Precision
- b) Compare absolute instruments with secondary instruments.
- c) Define active and reactive power.
- d) State any two advantage of electronic energy meter over analog energy meter.
- e) State any four static characteristics of instruments.
- f) Explain the term - multiplying factor of wattmeter.
- g) In a circuit, power is to be measured with a wattmeter having specification of 15A / 400V, 1500 watt full scale deflection. The reading of wattmeter was 750 watts. State the value of actual power consumed by the load.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) State the different type of torques in measuring instrument and explain it.
  - b) Compare analog ammeter and analog voltmeter. (any 4 points)
  - c) Explain the need of calibration.
  - d) Derive the equation for extending range of ammeter using shunt.
- 3. Attempt any THREE of the following:** **12**
- a) Compare CT and PT instrument (Any 4 points)
  - b) Explain with neat diagram measurement of active power by one wattmeter.
  - c) Explain construction and working of dynamometer type wattmeter with the help of neat diagram.
  - d) Draw the diagram of 3 phase electronic energy meter.
- 4. Attempt any THREE of the following:** **12**
- a) Explain working of 1 phase induction type energy meter with help of neat diagram.
  - b) Explain the working of CRO with help of block diagram.
  - c) Describe operation of phase sequence indicator with the help of neat diagram.
  - d) Draw neat diagram of Tri-vector meter and explain it.
  - e) State the application of CRO (any 8)

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

- a) Explain the working of MI type (attraction type) instrument.
- b) Explain the working of signal generator with the help of neat diagram.
- c) Draw a neat labelled diagram of earth tester and state its application.

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

- a) Explain the working of synchroscope with the help of neat diagram.
  - b) State the various errors that occur in energy meter along with their remedies.
  - c) Draw neat labelled diagram of Megger and explain its working.
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