

22239

24225

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each Section on Separate answer sheet.
(3) Answer each next main Question on a new page.
(4) Illustrate your answers with neat sketches wherever necessary.
(5) Figures to the right indicate full marks.
(6) Assume suitable data, if necessary.
(7) Use of Non-programmable Electronic Pocket Calculator is permissible.
(8) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

SECTION I

1. Attempt any FIVE of the following : 10
- a) Define :
 - i) Power
 - ii) Energy
 - b) State KVL and KCL.
 - c) Classify transformers based on :-
 - i) Voltage level
 - ii) No. of phasor

P.T.O.

- d) State the working principle of transformer.
- e) State uses of PMMC instrument.
- f) State working principle of solar Electricity.
- g) List out types of servomotor.

2. Attempt any THREE of the following : 12

- a) A coil has a resistance of 3Ω and inductance of 0.012739 Henry and is connected across 230V, 50 Hz, A.C. supply.
Calculate :-
 - i) Impedance
 - ii) Power factor
- b) Describe the construction of single phase transformer.
- c) Compare CFL and LED on any four parameters.
- d) Draw a neat sketch of PMMC instruments and label the parts.
- e) Describe working of single phase induction motor.

3. Attempt any THREE of the following : 12

- a) Describe the construction of servomotor with neat diagram.
- b) State the working principle of 3 phase induction motor. Also classify 3 phase induction motor based on its construction.
- c) Name the different single phase induction motors. Explain the working principle of any one of them.
- d) Describe any two methods of energy saving in textile industry.

SECTION II

- 4. Attempt any SIX of the following :** **12**
- a) Draw the symbol of –
 - i) Inductor
 - ii) Capacitor
 - b) Give one example each for –
 - i) Passive component
 - ii) Active component
 - c) Show the classification of semi-conductors.
 - d) Draw neat diagram of full wave rectifier.
 - e) State working of NPN transistor.
 - f) List out various optical sensors.
 - g) List out various temperature sensors.
- 5. Attempt any THREE of the following :** **12**
- a) Draw the symbol of photodiode and explain its principle of working.
 - b) Draw the symbol of LED and state its principle of operation.
 - c) Compare RTD with thermistor (Any four points)
 - d) Explain the working of LVDT with neat diagram.
 - e) Describe operation of pn junction diode in forward biased condition.
- 6. Attempt any TWO of the following :** **12**
- a) Describe the operation of transistor as a switch along with application.
 - b) Explain the different steps to measure the temperature of given liquid using thermocouple.
 - c) Describe the construction and working of bourdon tube.
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