

17524

11920

3 Hours / 100 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) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
 - (8) Use of steam tables, logarithmic, Mollier's chart is permitted.

Marks

1. (A) Attempt any THREE of the following : 12

- (i) Define conductor and insulator with example.
- (ii) State principle of 1- ϕ AC motor. Draw its schematic.
- (iii) Name the electrical accessories used in electric circuits and draw its symbol.
- (iv) Define SCR. Draw symbol and characteristics of Zener diode.

- (B) Attempt any ONE of the following :** **6**
- (i) Explain with neat sketch the generation of alternating current and voltage. Draw graphical representation of generated A.C. EMF.
 - (ii) Compare positive and negative return system. (any six points)
- 2. Attempt any FOUR of the following :** **16**
- (a) State Fleming's right hand and left hand rules.
 - (b) Draw construction diagram of D.C. motor. Explain its working principle.
 - (c) Explain ground return system.
 - (d) List applications of Photodiode and LED. (any two each)
 - (e) Draw the symbol of following components :
 - (i) Transistor
 - (ii) LED
 - (iii) Photo diode
 - (iv) Transformer
 - (f) Describe working principle and characteristic of LVDT (Inductive).
- 3. Attempt any FOUR of the following :** **16**
- (a) Define : (i) Active power (ii) Reactive power (iii) Apparent power. Draw power triangle.
 - (b) State working principle of Alternator. State its necessity.

- (c) Draw the block diagram of general measurement system.
- (d) Explain the dynamic characteristic of measuring system.
- (e) Draw the symbol of following gates
 - (i) NOT
 - (ii) NOR
 - (iii) OR
 - (iv) AND

4. (A) Attempt any THREE of the following :

12

- (i) Draw the following circuit diagrams :
 - (1) Half wave Rectifier
 - (2) Transistor as a amplifier.
- (ii) State four advantages of positive earth system.
- (iii) State the purpose of colour code in the electrical circuit of an automobile.
- (iv) Explain with neat diagram working of RTD.

(B) Attempt any ONE of the following :

6

- (i) Describe Doping and Energy band of semiconductor.
- (ii) Draw and explain general block diagram of shift register.

P.T.O.

5. Attempt any FOUR of the following :**16**

- (a) Define : (i) Time period (ii) Cycle.
- (b) State the concept of Stepper motor.
- (c) Draw the wiring diagram of stop-light.
- (d) Draw the V-I characteristics of Zener diode. List any two applications of Zener diode.
- (e) Explain (i) Fidelity (ii) Dynamic error.
- (f) Compare Analog signal and Digital signal. (any four points).

6. Attempt any FOUR of the following :**16**

- (a) Describe (i) Self-inductance
(ii) Mutual inductance
 - (b) Explain working of Full wave rectifier with waveforms.
 - (c) Describe (i) Repeatability
(ii) Responsibility
 - (d) Explain Piezoelectric effect.
 - (e) Draw R.S. flip-flops using NAND gate. Explain same with the help of truth table.
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