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C09-EC-605

3761

BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—2014

DECE—SIXTH SEMESTER EXAMINATION

INDUSTRIAL ELECTRONICS

Time : 3 hours]

[Total Marks : 80

PART—A

3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Draw the *V-I* characteristics of SCR.

2. Compare any three characteristics of GTOSCR and SCR.

3. Draw the equivalent circuit of SCR with two-transistor analogy.

4. List the applications of converters.

5. What is the need of freewheeling diode?

6. Briefly explain the working principle of chopper.

7. Mention the factors affecting the speed of DC motor.

8. Classify inverters.

9. Draw the schematic diagram of 3-phase bridge inverter.

10. Mention the applications of thermocouple transducer.

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PART—B

10×5=50

- Instructions :** (1) Answer *any five* questions.
(2) Each question carries **ten** marks.
(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

- 11.** Draw and explain the working of SMPS with a block diagram. 10
- 12.** Draw and explain the *V-I* characteristics of TRIAC under forward and reverse bias with its construction details. 10
- 13.** Explain the operation of chopper in all four quadrants. 10
- 14.** Explain the working of 3-phase fully-controlled converter with resistive load. 10
- 15.** Draw and explain the working of voltage-source inverter with necessary waveforms. 10
- 16.** Explain the speed control of induction motor by using converters and inverters (V/F) control. 10
- 17.** (a) Explain the construction and working principle of strain gauge. 7
(b) Mention any three applications of strain gauge. 3
- 18.** (a) Explain the working principle of capacitive transducer. 7
(b) List any three applications of capacitive transducer. 3

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