



C14-EE-604

4744

**BOARD DIPLOMA EXAMINATION, (C-14)
SEPTEMBER/OCTOBER - 2020
DEEE—SIXTH SEMESTER EXAMINATION
POWER 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 ISI symbols for the following :

(a) SBS

(b) POWER BJT

(c) MCT

2. Define (a) turn ON time and (b) turn OFF time.

3. Compare GTOSCR and SCR in any three aspects.

4. State the need of freewheeling diode.

5. Define chopper. List the types of choppers based on type of conversion.

- * 6. Classify inverters based on (a) type of commutation and (b) nature of driving source.
- 7. State any three applications of cyclo-converters.
- 8. State the factors affecting the speed of DC motors.
- 9. State the factors affecting the speed of AC motors.
- 10. Draw the Burglar alarm circuit.

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. Explain the construction and $V-I$ characteristics of TRIAC under forward/reverse bias with neat sketches.
- 12. Explain the working and $V-I$ characteristics of SCR.
- 13. Explain the working of the following with $V-I$ characteristics :
 - (a) ASCR
 - (b) IGBT
- 14. Explain the working of I-phase full-wave controlled converter under R load with neat waveforms.
- 15. Draw and explain the four quadrant operations of chopper.
- 16. Explain the working of a series inverter with waveforms.
- 17. Explain the speed control of DC shunt motor by using chopper.
- * 18. Explain the emergency lamp circuit using SCR with the help of a diagram.

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