C16–EE–504

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BOARD DIPLOMA EXAMINATION, (C–16)

NOVEMBER—2020

DEEE—FIFTH SEMESTER EXAMINATION

POWER ELECTRONICS AND PLC

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. Define latching current and holding current of SCR.

2. Compare LASCR with SUS in any three objects.

3. Write classification of converters.

4. State the classifications of inverters.

5. Define cycloconverter and write its applications.

6. State the factors affecting the speed of dc motors.

7. State the different types of disturbance which occur on power supply system.

8. State the advantages of automation.

9. Draw the block diagram of PLC and label the parts.

10. Draw the ladder diagram of logic OR and NOT gates.

PART—B 10×5=50

Instructions : (1) Answer *any* **five** questions.

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

(3) Answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

11. *(a)* Explain the construction of GTOSCR with a diagram. 5

(b) Explain class C (complementary) communication of SCR with neat diagram. 5

12. Explain different modes of operation of TRIAC with neat sketches. 10

13. Explain the working of single-phase full-wave AC voltage regulator with resistive load with neat waveforms. 10

14. *(a)* Define the chopper and state its applications. 5

(b) Explain the operation of series inverter with neat circuit diagram. 5

15. Explain the emergency lamp circuit using SCR with a diagram. 10

16. *(a)* Compare open-loop and closed-loop control systems. 5

(b) Explain the types of feedback control system. 5

17. *(a)* Explain the open-loop control system with an example. 6

(b) State the types of PLC instruction set. 4

18. Explain the ladder diagram of DOL starter with neat diagram. 10

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