C16-**EE-504**

6636

BOARD DIPLOMA EXAMINATIONS

SEPTEMBER/OCTOBER-2020

DEEE- FIFTH SEMESTER

POWER ELECTRONICS & PLC

Time:3 hours Max. Marks: 80

PART – A 3 X 10 = 30

Instructions: *1. Answer **all** questions.*
*2. Each question carries **Three** Marks.*
3. Answer should be brief and straight to the point and should not exceed five simple sentences.

1. Define (a) Holding current (b) Latching current (c) Turn off time of SCR.
2. Compare SUS and SCS in any three aspects.
3. Define chopper and list any four application of chopper
4. Classify the Inverters.
5. State any three applications of Cyclo- Convertors.
6. State the factors affecting the speed of AC motors.
7. Draw the Burglar Alarm circuit using SCR.
8. State the need of feedback in a control system.
9. List any six application of PLC.
10. Draw the ladder diagram for OR-gate

[Cont..,

PART – B 5 X 10 = 50

***Instructions**:* 1. *Answer any **Five** questions*
2. *Each question carries **TEN** Marks.*
3. *Answer should be comprehensive and Criteria for Valuation is the content but not the length of the answer.*

11. Explain the construction and V-I characteristics of SCR.

12. a) Explain complementary commutation of SCR with the help of circuit diagram.
b) Compare GTO SCR and SCR in any five aspects.

13. Explain the working of single phase full wave fully controlled converter under R load with neat wave forms.

14. a) Explain the working of single phase full wave AC regulator with resistive load.
b) Explain the working of single phase center tapped cyclo converter with neat Sketch.

15. Explain the speed control of three phase Induction motor by using AC voltage regulator

16. a) State any three merits and demerits of open loop control system.
b) State any five applications of closed loop Control system

17. a) Draw the generalized block diagram of feedback control system and label the parts.
b) Draw the block diagram of PLC and Label its parts.

18. Draw the ladder diagrams for the following
    i) DOL starter
    ii) STAR-DELTA strater

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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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