

6636

## BOARD DIPLOMA EXAMINATIONS

SEPTEMBER/OCTOBER-2020

DEEE- FIFTH SEMESTER

POWER ELECTRONICS &amp; 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 SCS 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