

October 2017

Time – Three hours  
(Maximum Marks: 75)

[N.B: (1) Q.No. 8 in PART – A and Q.No. 16 in PART – B are compulsory. Answer any FOUR questions from the remaining in each PART – A and PART – B.

(2) Answer division (a) or division (b) of each question in PART-C.

(3) Each question carries 2 marks in PART – A, 3 marks in Part – B and 10 marks in PART – C.]

PART – A

1. Draw the symbol of IGBT and MOSFET.
2. Mention the types of triggering of SCR.
3. What is meant by forced commutation?
4. What is meant by chopper?
5. What is SMPS? Mention its types.
6. State any two advantages of PLC.
7. What is DCS?
8. List the methods of obtaining sine wave output from the inverter.

PART – B

9. Write short notes on pulse transformer.
10. Draw the circuit diagram of single phase fully controlled bridge converter with RL load.
11. List the advantages and disadvantages of SMPS.
12. Compare *online* UPS with *offline* UPS.
13. Draw the symbol for the following items in ladder diagram:  
(i) Normally open contact (ii) Normally closed contact (iii) Output loads.
14. What is the function of I/P module used in PLC? List the I/P devices.
15. What is the function of LCU in distributed control system?
16. What is the purpose of using fly wheel diode in converter circuit?

[Turn over.....

PART – C

17. (a) Explain the working principle and VI characteristics of IGBT with neat diagram.

(Or)

- (b) Explain the working principle of synchronised UJT triggering circuit with waveforms.

18. (a) Explain the working principle of single phase half controlled bridge converter with R and RL loads with neat diagrams.

(Or)

- (b) Explain the working of DC chopper with diagrams.

19. (a) Explain the working principle of single phase inverter with waveforms and circuit diagram.

(Or)

- (b) Draw the block diagram of SMPS and explain it. State its applications.

20. (a) Draw the block diagram of PLC and explain each block.

(Or)

- (b) Draw the ladder diagram of star delta starter and explain.

21. (a) Draw and explain the architecture of distributed control system.

(Or)

- (b) Explain the features and advantages of DCS.

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