EEM54 Power Electronics & Drives

793

REG. NO

OCTOBER 2021

Time: Three hours | Maximum Marks: 75

Note:
1. Answer ALL the questions in PART-A (1 mark each)
2. Answer any ONE question from each unit in PART-B (3 marks each)
3. Answer any ONE question from each unit in PART-C (10 marks each)
4. The question paper contains TWO Pages

PART-A (1x10=10)

1. How many junction in the SCR?
2. What are the operating mode of TRIAC?
3. What is the delay angle in phase controlled rectifier?
4. What is cycloconverter?
5. What is duty cycle of DC chopper?
6. What is meant by buck regulator?
7. What is electric drive?
8. List any one advantage of AC drive than DC drive.
9. State any one advantage of HVDC transmission.
10. Write any one application of servo drive.

PART-B (3x5=15)

UNIT-I

11. What is the function of snubber circuit?
12. How SCR differ from TRIAC?

UNIT-II

13. What are the power factor improvement methods in phase controlled rectifier?
14. What is the effect of inductive load in the performance of a three phase bridge rectifier?

UNIT-III

15. What are the difference between natural commutation and forced commutation?
16. List few industrial applications of inverter.

UNIT-IV

17. Why ratio V/f is maintained constant for speed below base speed?
18. Draw the diagram of single phase full converter drive.

UNIT-V

19. Draw the block diagram of Off-line UPS.
20. What is Static VAR compensation? & where it is used?

PART-C (10x5=50)

UNIT-I

21. Explain resistance-capacitance firing circuit with wave form.
22. Explain the construction and working principle of TRIAC and Draw its VI characteristics.

UNIT-II

23. Explain with neat sketch, the working of single phase Fully controlled rectifier with RL load and draw its wave form.
24. Explain the operation of 3ϕ AC voltage controller.

UNIT-III

25. Explain the operation of Buck-Boost converter with neat diagram.
26. Describe the working of single phase full bridge inverter with relevant circuit and wave form.

UNIT-IV

27. Describe the working of a single phase full converter fed dc separately excited motor with relevant wave form and expression.
28. Describe stator-voltage control technique for the speed control of a three phase induction motor.

UNIT-V

29. What are the types of electric welding? Explain any one electric welding with neat diagram.
30. What is UPS? Describe the working of On-line UPS with relevant diagram.

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