G 1105 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2016

Seventh Semester

Branch : Electrical and Electronics Engineering

ELECTRICAL DRIVES AND CONTROL (E)

(Old Scheme—Prior to 2010 Admissions)

[Supplementary/Mercy Chance]

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 4 *marks.*

1. Explain the re-generative breaking operation of a d.c. series motor.
2. Indicate how the load and motor characteristics determine the selection of appropriate drive.
3. What are the advantages and disadvantages of three-phase dual converter fed d.c. motor drives ?
4. What are the advantages of chopper fed d.c. drives ?
5. List the disadvantages of speed control of three-phase induction motors by stator voltage control.
6. What is meant by slip power recovery ?
7. Explain sinusoidal PWM.
8. What is freewheeling diode ?
9. Give different speed control schemes of synchronous motor.
10. What are the features of self-control of synchronous motors ?

(10 × 4 = 40 marks)

Part B

Answer **all** *questions.*
Each question carries 12 *marks.*

11. With the help of neat waveforms and diagrams explain the operation of fully controlled bridge rectifier drives.

Or

12. Describe the operation of a single-phase half wave controlled d.c. drive with necessary waveforms and diagrams.

Turn over

13. Describe the operation of a three-phase converter based d.c. drive which is suitable for four quadrant operation.

Or

14. Explain the armature voltage control of a d.c. motor using chopper drive.

15. Describe the slip power recovery with static Scherbius drive.

Or

16. Explain the V/F method for speed control of three-phase induction motor. What are its salient features ?

17. Explain the operation of Voltage Source Inverter with neat diagram.

Or

18. Explain the operation of Current Source Inverter with neat circuit diagram.

19. Explain the operation of a self-controlled synchronous motor drive using load commutated thyristor inverter.

Or

20. Explain the open loop speed control of synchronous motor fed from voltage source inverters with neat diagram.

(5 × 12 = 60 marks)