Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 50476

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2017
Third Semester
Mechanical Engineering
EE 6351 – ELECTRICAL DRIVES AND CONTROLS
(Common to : Manufacturing Engineering/Mechanical and Automation Engineering/Petrochemical Engineering/Production Engineering/Chemical Engineering/Petrochemical Technology)
(Regulations 2013)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions.

PART – A **(10×2=20 Marks)**

1. List out the components in electrical drive with block diagram.
2. Draw the heating and cooling curve of electric drive.
3. Why DC shunt motor is termed as a constant speed motor ?
4. Define regenerative braking.
5. State the reason for using starters in DC motor.
6. Draw the equivalent circuit diagram of three phase slip ring induction motor.
7. What are the four quadrant of DC drives ?
8. Why self-commutated devices are preferred over thyristors for chopper circuits ?
9. Write a note on slip power recovery scheme.
10. List out the drawbacks of rectifier fed DC drives.

PART – B (5×13=65 Marks)

11. a) Explain any four classes of duty for an electric motor. (13)

(OR)

b) Explain different types of electric drives and the factors affecting the selection of drives. (13)

12. a) Explain in detail about any two methods of electrical braking in DC machines. (13)

(OR)

b) Discuss in detail about characteristics of shunt motors. (13)

13. a) Explain with neat sketch of working principle of three point starter and its disadvantages. (13)

(OR)

b) Discuss in detail about different control circuits used in series motors. (13)

14. a) Explain the procedure of speed control of DC shunt motor using armature control method. (13)

(OR)

b) Discuss briefly of ward-Leonard speed control method with neat sketch. (13)

15. a) Explain any two speed control methods of three phase induction motor. (13)

(OR)

b) Explain in detail about static scherbius drive. (13)

PART – C (1×15=15 Marks)

16. a) Explain with neat sketch working principle of four quadrant chopper fed DC motor and its application. (15)

(OR)

b) Explain the speed control of DC series motors using controlled rectifiers. Also draw the transfer characteristics. (15)