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Question Paper Code : X10392

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020

Third Semester

Mechanical Engineering

EE 8353 – ELECTRICAL DRIVES AND CONTROLS

(Common to Manufacturing Engineering/Mechanical and Automation
Engineering)

(Regulations 2017)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. What are the advantages of electrical drive ?
2. What are the requirements of an electric drive ?
3. What are the different methods of braking applied to the induction motor ?
4. What is the significance of DC series motor ?
5. State the purpose of rotor resistance starter.
6. State the need of starters in electric motors.
7. What are the methods involved in armature voltage control ?
8. What is a chopper ?
9. What is meant by V/F control ?
10. What is the advantage of induction motor over a DC motor ?

PART – B

(5×13=65 Marks)

11. a) i) Discuss the various factors which decide the choice of an electric drive. **(7)**
ii) Briefly explain the heating and cooling curves of an electric drive. **(6)**

(OR)

- b) Discuss the different classes of duty cycle.

X10392



12. a) Explain the speed torque characteristics of three phase induction motor with neat diagrams.

(OR)

b) Explain various methods of braking used for shunt and series motors.

13. a) Explain auto transformer and star-delta starters for AC motors.

(OR)

b) With neat diagram, explain the working of DC motor starter using time delay relays.

14. a) Discuss the ward-leonard speed control system with a neat diagram. Also mention its advantages and disadvantages.

(OR)

b) Explain the speed control of dc shunt motor using fully controlled rectifiers.

15. a) Explain the slip power recovery control of slip ring induction motor in detail.

(OR)

b) Explain the pole changing method of speed control for a squirrel cage Induction motor.

PART – C

(1×15=15 Marks)

16. a) Analyze the speed control of a three phase induction motor using three phase bridge inverter.

(OR)

b) Analyze the theory of three point and four point starter in detail.
