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TED (15) – 6034

(REVISION — 2015)

Reg. No. .....

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2018

ELECTRICAL DRIVES AND CONTROLS

[*Time* : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. What is electric drives ?
2. What are the different method of speed control of three phase induction motor ?
3. What are the methods of starting of DC motor ?
4. What are the method of speed control of DC motor ?
5. What is battery powered vehicle drives ?

(5×2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Differentiate between electric drives and mechanical drives.
2. Explain the different classification of electric drive with specify application.
3. Describe the permanent magnet synchronous motor drive.
4. Draw and explain the starting of induction motor by using star delta starter.
5. Explain the speed control of DC motor by uncontrolled rectifier method.
6. Draw and explain the starting of DC motor by using three point starter.
7. Explain the electric drives used in the cement mills.

(5×6 = 30)

Marks

PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

III (a) Explain the general classification of electric drives. 7

(b) Describe the various components effecting the size and power rating of the motor. 8

OR

IV (a) Explain the various components of electric drive with block diagram. 8

(b) What are the advantages of electric drives ? 7

UNIT — II

V (a) Draw and explain the torque-slip characteristics of the three phase induction motor. 8

(b) Draw and explain the rotor rheostat starting method with neat sketch. 7

OR

VI (a) Explain the speed control of the single phase induction motor by voltage controller. 7

(b) Describe the working of any three electrical braking used in the three phase induction motor. 8

UNIT — III

VII (a) Explain the performance characteristics of dc shunt motor. 8

(b) Draw and explain the speed control of dc motor by flux control method. 7

OR

VIII (a) Explain the speed control of dc motor by armature voltage control method. 7

(b) Explain the different methods of braking in dc motor. 8

UNIT — IV

IX (a) Describe the electric drives used in the steel mills. 8

(b) Describe the working of solar powered pump drive. 7

OR

X (a) Describe the electric drives used in the textile mills. 7

(b) Describe the electric drives used in the sugar mills. 8
