

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

ELECTRIC DRIVES AND CONTROL

[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. List the various components of electric drives.
2. Enumerate any two methods of braking of induction motors.
3. Categorize any two methods of speed control of DC motors.
4. Name any two methods of braking of DC motors.
5. Identify the electric drives in steel mills.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. List the advantages of electric drives.
2. Discuss about the permanent magnet synchronous motor drives.
3. Describe variable frequency control from voltage sources.
4. State speed control by transformer and uncontrolled rectifier fed DC drives.
5. Explain speed control by cycloconverter.
6. Describe the working of Battery powered vehicle drives.
7. Identify and discuss about the electric drives in coal mining.

(5×6 = 30)

PART — C

(Maximum marks : 60)

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

UNIT — I

- III (a) Explain any 4 factors affecting the size and rating of motor for a particular application. 8
- (b) Discuss about the power rating motor for continuous operation at constant speed drives like pumps and fans. 7

OR

- IV (a) Plot the block diagram of electric drive system and describe the various components of electric drives. 8
- (b) Elaborate the different factors for the choice of electric drives. 7

UNIT — II

- V (a) Discuss the any one method of starting of three Phase induction motors. 8
- (b) Compare current source inverter and voltage source inverter drives. 7

OR

- VI (a) Describe speed control of synchronous motor from variable frequency. 7
- (b) Explain any one method of braking of induction motors. 8

UNIT — III

- VII (a) Describe speed control by transformer and uncontrolled rectifier fed DC drives. 8
- (b) Analyze the operation of DC traction using chopper controlled DC motor drives. 7

OR

- VIII (a) State any two methods of starting of DC motors. 8
- (b) Describe chopper controlled DC drives. 7

UNIT — IV

- IX (a) Describe the working of solar powered pump drives. 8
- (b) Discuss the electric drives in Petrochemical Industry. 7

OR

- X (a) Describe the working of battery powered vehicle drives. 8
- (b) Discuss the electric drives in sugar mills. 7