



C14-EE-504

4639

**BOARD DIPLOMA EXAMINATION, (C-14)
SEPTEMBER/OCTOBER - 2020
DEEE—FIFTH SEMESTER EXAMINATION**

INDUSTRIAL DRIVES

Time : 3 hours]

[Total Marks : 80

PART—A

3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Define an electrical drive.
2. Classify the drives based on their applications.
3. State the use of fly wheel.
4. State the advantages of an electric braking.
5. What is the regenerative braking?
6. State the need of breaking resistor in plugging.
7. State suitable motors for the following domestic applications :
 - (a) Mixies
 - (b) Vacuum cleaner

- * 8. List the types of drives used to pump water from ground floor/sump.
9. Write the six industrial applications of drives.
10. Select suitable motor drive used for the following :
- (a) Cranes
- (b) Mines
- (c) Pump sets

PART—B

10×5=50

- Instructions :** (1) Answer *any five* questions.
 (2) Each question carries **ten** marks.
 (3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. (a) State the advantages and disadvantages of individual drive. 5
 (b) What are the factors which influence the selection drive? 5

12. The load cycle for a motor which is required to drive haulage is as follows :

0–10 minutes 60 HP, 10–16 minutes 20 HP, 16–24 minutes 40 HP, 24–32 minutes no load, 32–40 minutes 30 HP.

* The above load cycle is repeated indefinitely. What would be the size of motor suitable for this load? 10

13. (a) State the need of load equalization.
 (b) State the methods adapted to reducing the noise. 5+5

- * 14. A 50 HP, 220 V d.c. shunt motor with a full load speed of 100 r.p.m. is to be braked by plugging. Estimate the value of resistance which would be placed in series with it, to limit the current to 150 A. What should be initial value of the electric braking torque and the value of torque when the speed has fallen to half its full-load value? Armature resistance of the motor is 0.2 . Full load armature current is 100 A. 10
15. A 220 V DC series motor drives a 800 N-m torque load when running at 1200 r.p.m. The armature winding and field winding resistances are 0.008 and 0.05 respectively. The motor efficiency is 90%. Calculate the value of the dynamic braking resistor that will be capable of 500 N-m torque at 1200 r.p.m. The friction and windbags losses are assumed to be constant at both speeds. 10
16. Explain the regenerative braking of 3-phase induction motor. 10
17. (a) Explain the working of drive used in grinder.
(b) Write the characteristics required for drives used in belt conveyors. 5+5
18. (a) Explain the working of ship propulsion with suitable drive.
(b) Explain the working of textiles mill with suitable drive. 5+5
