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C14-EE-504

**4639**

**BOARD DIPLOMA EXAMINATION, (C-14)**

**MARCH/APRIL—2021**

**DEEE - FIFTH SEMESTER EXAMINATION**

**INDUSTRIAL DRIVES**

*Time : 3 hours ]*

*[ Total Marks : 80*

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**PART—A**

4×5=20

- Instructions :** (1) Answer *any five* questions.  
(2) Each question carries **four** marks.  
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Define an electric drive and list the various components of it.
2. List the types of loads that occur in industrial practice based on duty.
3. List the types of enclosures of a motor.
4. What is regenerative braking?
5. List the types of electric braking.
6. State different systems of braking of electric motors.
7. Mention suitable motors for the following drives :
  - (a) Pump set
  - (b) Air conditioner

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8. Write any six domestic applications of drive.
  9. Write any three characteristics for the motor suitable for lifts and hoists.
  10. Write any four industrial applications of drives.

## PART—B

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

11. Draw the block diagram of an electric drive and state the function of each block in that diagram. 15
12. Draw the typical load curves for (i) continuous duty at constant load and (ii) continuous duty with variable load of a motor. 15
13. Compare AC drives with DC drives. 15
- \* 14. Explain how DC series motor is stopped by (a) plugging and (b) rheostatic braking. 15
15. Explain the following electrical braking systems applied to d.c. shunt motor : 15  
 (a) Plugging  
 (b) Rheostatic
16. Explain the rheostatic braking applied to the DC series motor. 15

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17. (a) Mention suitable motors for the following drives : 5+10=15
- (i) Cranes
  - (ii) Sugar mills
  - (iii) Lifts and hoists
  - (iv) HDD (Hard-disk drive)
  - (v) Robot arm.
- (b) Explain the working principle of Air conditioner.
18. Explain the working of cement mill with suitable motor. 15

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