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C14–EE–504

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BOARD DIPLOMA EXAMINATION, (C–14)

OCT/NOV—2017

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. Briefly explain the concept of electric drive.

2. Define *(a)* continuous rating and *(b)* short-time rating of motors. 1½+1½

3. List the different types of bearings.

4. Write any three advantages of electric braking over other forms of brake.

5. State different systems of braking of electric motors.

6. What is the vacuum braking system for electric motors?

7. Write any six domestic applications of drive. ½×6

8. Mention suitable motors for the following drives : 1×3=3

(a) Pump set

(b) Air conditioner

(c) Hair dryer

9. Write any six industrial applications of drives. ½×6

10. Write the characteristics of the motor suitable for punches and presses.

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. Explain about the following electric drives and also state their advantages and disadvantages : 5+5

(a) Group drive

(b) Individual drive

12. *(a)* What are the factors governing the selection of electric drive?

(b) Classify the loads on the motor with respect to time. 5+5

13. A motor has following duty cycle. 100 HP for 10 minutes, no load for 5 minutes, 60 HP for 8 minutes, no load for 4 minutes which is repeated indefinitely. Determine a suitable size of a continuously rated motor.

14. Explain the following electrical braking systems applied to d.c. shunt motor : 5+5

(a) Plugging

(b) Rheostatic

15. What is regenerative braking? Explain regenerative braking applied to a.c. three-phase induction motor. 3+7

16. A 440-V, 40-kW, 750-r.p.m. d.c. shunt motor has full load efficiency of 92%. The field resistance is 220 and the armature resistance is 0·1 . Find the speed under regenerative braking.

17. *(a)* Explain the working principle of washing machine.

(b) Mention suitable motors for the following drives :

(i) Belt conveyor

(ii) Lathes

(iii) Flour mills

(iv) Printing

(v) Ship propulsion

18. *(a)* Explain the working of rolling mill with suitable motor.

(b) Explain the working of cement mill with suitable motor. 5+5

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