

1791

April 2025

*Time - Three hours*  
(Maximum Marks: 100)

- (N.B.
1. Answer all questions under Part-A. Each question carries 3 marks.
  2. Answer all the questions either (a) or (b) in Part-B. Each question carries 14 marks.]

PART - A

1. List the advantages of ring main distribution system.
2. Differentiate indoor and outdoor substation.
3. What are the advantages of electric drives?
4. Write about electric braking.
5. What is overhead equipment in traction system?
6. List the methods of speed control of DC traction motors.
7. List any three causes for lowering the illumination level.
8. Define reflection factor.
9. What is eddy current heating?
10. List any three types of electric welding.

[Turn over.....

PART - B

11. (a) Draw the layout of 11kV/400V distribution substation. Also explain the necessity of each part.

(Or)

- (b) A single phase distributor 2 km long supplies a load of 120 A at 0.8 pf lagging at its far end and a load of 80A at 0.9 pf lagging at its mid-point. Both the power factors are referred to the voltage at the far end. The resistance and reactance per km (go and return) are  $0.05\Omega$  and  $0.1\Omega$  respectively. If the voltage at the far end is maintained at 230 V, calculate (i) the voltage at the sending end (ii) the phase angle between voltages at the two ends.

12. (a) Discuss about the selection of motors for the following machineries: Lathe, Cement Kiln and Hoist.

(Or)

- (b) Describe the various types of electric drives.

13. (a) Discuss about the different current collectors used in electric traction.

(Or)

- (b) Explain about plain rheostatic control of starting of traction motors.

14. (a) Discuss about the types of lighting schemes.

(Or)

- (b) Explain the working of following with necessary diagrams:  
(i) Incandescent lamp (7)  
(ii) Fluorescent tube (7)

15. (a) Explain the working of an induction stove with a sketch. Also state its merits and demerits.

(Or)

- (b) Write short notes on the following:  
(i) Inert Gas Metal Arc Welding (7)  
(ii) Butt welding (7)

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