

9087

21011

3 Hours / 80 Marks

Seat No.

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- Instructions* – (1) All Questions are *compulsory*.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data, if necessary.

Marks

- 1. Attempt any FOUR of the following :** **16**
- a) Define the following and state its units :
 - (i) Luminous intensity
 - (ii) (MSCP) Mean Spiral Candle Power.
 - b) Compare on any Four important points Arc welding and Resistance welding.
 - c) Write Four types of elevator and explain about any one of them.
 - d) State two advantages and two disadvantages of electrical drive.
 - e) Write four points for suitability of D.C. motors for traction purpose.
 - f) What are the four disadvantages of low power factor ?

P.T.O.

2. Attempt any **THREE** of the following : 12
- a) Compare induction heating and Dielectric heating on Four important points.
 - b) How the speed of the motor is controlled above and below the normal speed economically ?
 - c) Write and explain two methods to improve power factor.
 - d) State and explain the inverse square law of illumination.
3. Attempt any **THREE** of the following : 12
- a) Draw D.C. locomotive and EMV's with series parallel combination.
 - b) What is the need to improve power factor ? What will happen if power factor is not improved ?
 - c) Write four important points on comparison between Spot welding and Arc welding.
 - d) How H.P. (size) of motor is decided ?
4. Attempt any **TWO** of the following : 16
- a) Sketch the salt bath furnace, label it and write the function of each part.
 - b) Write four advantages and four disadvantages on 25 KV. AC System over DC system in traction.
 - c) Draw the sodium vapour lamp give the name to each part and write the function of each part.
5. Attempt any **TWO** of the following : 12
- a) Write three types of electric braking and explain any one of them.
 - b) Describe about :
 - (i) Size and shape
 - (ii) Speed and
 - (iii) Location of elevator machine
 - c) Compare electric traction over Diesel traction on any six points.

6. Attempt any THREE of the following : 12

- a) Give any 4 points of comparison between Group Drive and Individual Drive.
 - b) What is traction motor control ? Explain its requirements.
 - c) What is load equalization ? Explain it with the help of diagram.
 - d) A locomotive exerts a tractive effort of 35,300 N in hauling a train at 48 kmph on the level track. If the motor is to haul the same train on a gradient of 1 in 50 and the tractive effort required is 55-180 N. Determine the power delivered by the locomotive if it is driven by
 - (i) dc series motors
 - (ii) induction motors.
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