314323

12526

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following : **10**

a) State the inverse square law.

b) Define electric heating.

c) Give two advantages of electric heating.

d) Give the principle of resistance welding.

e) Define the electric drive.

f) Give the classification of electric drives.

g) State the two requirements of ideal traction system.

P.T.O.

Marks

2. Attempt any THREE of the following : **12**

a) Explain with neat diagram metal halide lamp.

b) Compare core type furnace and coreless type induction furnace.

c) Explain working principle of projection welding.

d) What is need of load Equilization? Give one method for it.

3. Attempt any THREE of the following : **12**

a) A 230 V lamp has a total flux of 2500 lumens and takes a current of 0.7 amp. Calculate lumen per watt and MSCP per watt.

b) Explain with neat diagram principle of dielectric heating.

c) Explain with neat sketch rheostatic braking system for DC series motor.

d) Describe any four advantages of 25 KV A.C. traction system.

4. Attempt any THREE of the following : **12**

a) Define the following terms related to illumination level.

i) Glare

ii) Depreciation factor

iii) Candle power

iv) M.H.C.P.

b) Give in detail classification of electric heating.

c) Explain the working of Diamond type pantograph with neat labeled diagram.

d) An electric motor has load variation as given below

i) Torque 140 Nm for 20 minutes

ii) 40 Nm for 10 minutes

iii) 200 Nm for 10 minutes

iv) 100 Nm for 20 minutes

If the speed of motor is 720 rpm. Find power rating of motor.

e) Define the average speed and scheduled speed. State the factors affecting them.

Marks

5. Attempt any TWO of the following : **12**

a) State the various types of lighting schemes used in illumination and explain any two of them.

b) State the MODERN welding techniques. With the block diagram explain IGBT controlled welding.

c) Draw a neat labelled block diagram of AC electric locomotive. State the function of each part.

6. Attempt any TWO of the following : **12**

a) Explain with neat diagram construction and working of 'AJAX WYATT' vertical core furnace. Give advantages of it.

b) Explain in detail spot welding. Give the advantages and disadvantages.

c) Compare between group drive and individual drive on the basis of

i) speed control

ii) reliability

iii) operating power factor

iv) installation

v) overall efficiency

vi) flexibility layout
