

Roll No. \_\_\_\_\_

[Total No. of Pages : 3]

7E4174

7E4174

B.Tech. VII Semester (Back) Examination Dec.- 2015

Electrical Engineering.

7EE4 (O) Utilization of Electrical Power

EX

Time : 3 Hours

Maximum Marks : 80

Min. Passing Marks : 24

**Instructions to Candidates:**

Attempt any **five** questions, selecting one question from **each unit**. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.)

**Unit - I**

1. a) Give classification of various dielectric heating method along with their working principle? (8)
- b) Explain high frequency eddy current heating with suitable diagram? (8)

**OR**

1. a) Briefly describe the principle of induction heating at high frequency and highlight few applications of eddy current heating (8)
- b) Explain electric welding, classified it and explain arc welding? (8)

**Unit - II**

2. a) It is desired to illuminate a drawing hall with an average illumination of about 250 lux. Area of hall is 30 m x 20 m. Lamps are to be fitted at 5m height. Find out the no. and size of incandescent lamps required for an efficiency of 12 lumens / watt utilization factor = 0.4 and maintenance factor is 0.85. (8)
- b) Explain illuminations, define its law and also explain luminous efficiency? (8)

**OR**

2. a) A building measuring  $30\text{m} \times 20\text{m}$  is to be flood it on the front side with brightness of 25 lumen / Sqmtr coefficient of reflection is 0.25 . Lamps of 500 w having lumens output of 8000 each are used assumed beam factor = 0.6 , waste light factor 1.2 and maintenance factor 0.75 determine no. of lamps required . (8)
- b) With help of neat sketch diagram explain construction and working of sodium vapour lamp. (8)

**Unit - III**

3. a) Explain principles and applications of electrolysis provide a suitable diagram if needed? (8)
- b) Describe the phenomina of electrode position also provide factor which on which quantity of electrode position depends? (8)

**OR**

3. a) Explain electro extraction and electroplating , also describe its performance method? (8)
- b) Explain the following terms in detail (8)
- i) Electro polishing
  - ii) Electrocleaning.

**Unit - IV**

4. a) Explain the suitability of DC series motor for its application in electric locomotive for traction duty? (8)
- b) Explain supply for electric traction system: comparison and application of different system. (8)

**OR**

4. a) Explain Ac system of electric traction with help of suitable comparison and neat diagram . (8)
- b) Write short note on :
- i) Conductor rail
  - ii) Pantograph. (8)

**Unit - V**

5. a) The peripheral speed of a railway traction motor cannot be allowed to exceed 45 m/s. If gear ratio is 16/64, motor armature diameter 40 cm and wheel diameter 84cm calculate limiting value of train speed. (8)
- b) Explain various methods of electric braking for traction motors. (8)

**OR**

5. a) Suburban electric train has max. Speed of 70 km/hr. Schedule speed including a stop of 20 sec is 40 km/hr. If acceleration is 2 km/h/s. Find the value of retardation when average distance between stop is 4 km. (8)
- b) Describe the mechanics of train movement also explain Co-efficient of adhesion? (8)

RTUPAPER.COM

RTUPAPER.COM