

Roll No

EX - 501**B.E. V Semester**

Examination, June 2015

Utilization of Electrical Energy**Time: Three hours****Maximum Marks : 70**

- Note:** i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
- ii) All parts of each questions are to be attempted at one place.
- iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.
- iv) Except numericals, Derivation, Design and Drawing etc.

Unit-I

1. a) What do you understand by Polar Curve?
- b) Write the basic nature of light.
- c) Explain 'stroboscopic effect' in brief.
- d) It is desired to illuminate a drawing hall with an average illumination of about 250 lux. The area of the hall is 30m × 20m. The lamps are to be fitted at 5m height. Find out the number and size of incandescent lamps required for an efficiency of 12 lumens/watt utilisation factor = 0.4 and maintenance factor = 0.85.

OR

Explain the working of a high pressure mercury vapour lamp giving its circuit diagram. Write the advantages and disadvantages of mercury vapour lamp.

Unit-II

2. a) What is resistance welding? What are its limitations?
 b) What is Electrolysis? Explain briefly.
 c) Distinguish direct heating and indirect heating.
 d) Describe with diagram the working principle of
 i) Vertical core type furnace
 ii) Coreless induction furnace

OR

What is Electroplating and what for is it done. Describe the various operations involved in electro plating.

Unit-III

3. a) What are the merits and demerits of DC system of track electrification.
 b) Explain tractive effort.
 c) Draw the speed time curve for urban and main line service.
 d) Derive the equation of specific energy consumption.

OR

Write short notes on:

- i) Mechanics of train movement
 ii) Co-efficient of adhesion

Unit-IV

4. a) What is the difference between AC drive and DC drive system.
 b) Write the difference between group drive and individual drive.

- c) Explain the four quadrant operation of electrical drive.
 d) Explain plugging with neat sketch diagram.

OR

Explain regenerating braking with neat sketch diagram.

Unit-V

5. a) Why dc series motor used as a traction motor?
 b) What do you mean by Electric car?
 c) What is tractive effort. Explain in brief.
 d) Write short notes on:
 i) Electrical Vehicles
 ii) Transmission requirement

OR

What do you mean by Energy Consumption. Explain in detail.
