EE-702 (GS)

B.E. VII Semester Examination, June 2020

Grading System (GS)
Utilization of Electrical Energy
Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
   ii) All questions carry equal marks.

1. A lamp of 500 Watts having mscp of 1000 is suspended 2.7 metres above the working plane. Calculate:
   i)   Illumination directly below the lamp at the working plane.
   ii) lamp efficiency
   iii) Illumination at a point 2.5 meters away on the horizontal plane from vertically below the lamp.

2. a) State the advantages of electric heating over other types of heating.
   b) Explain the method of induction heating and describe coreless type of induction furnace.

3. A 500V d.c. shunt motor having an efficiency of 85% operates a hoist having an efficiency of 70% calculate the current taken from the supply in order to raise a load of 500kg at 3m per second. If rheostatic braking is employed. What resistance must be put in the armature circuit in order to lower the load at the same speed.

4. A train runs with average speed of 40 kmph. Distance between stations is 2km. Values of acceleration and retardation are 1.5 kmphps and 2.5kmphps respectively. Find the maximum speed of train assuming trapezoidal speed time curve.

5. a) Explain the different methods of electrical welding.
   b) What are the qualities of a good weld?

6. a) Define illumination, luminance, luminous intensity and derive the relation among these quantities.
   b) Give Faraday's laws of electrolysis.

7. a) What is an electric drive? Classify various types of electric drives and discuss their merits and demerits.
   b) What is meant by load equalization? Explain how this is achieved in electrical industry.

8. Write short notes on any two of the following:-
   a) Electrical braking
   b) 25 kV a.c. single phase traction system
   c) Dielectric heating
   d) Laws of illumination

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