TH4-UTILIZATION OF ELECTRICAL ENERGYAND TRACTION

Full Marks: 80   Time : 3 Hours

Answer any Five Questions including Q No. 1& 2

Figures in the right hand margin indicates marks

1. **Answer all the questions**   10x2

   a) Define(i) Current efficiency (ii)MHSCP

   b) What do you mean by invert squares law in illumination?

   c) State the groups of systems of electric Traction.

   d) State the applications of three phase synchronous motor.

   e) What is group drive? Give an example.

   f) What is dielectric heating?

   g) State Faraday's First Law of Electrolysis.

   h) What is resistance welding? Give an example.

   i) Name any two types of arc furnaces.

   j) What are polar curves and state their uses.

2. **Answer any six questions**   6x5

   a) Describe about the magnetic braking in electric traction briefly.

   b) Describe the extraction of aluminium in fused electrolyte process briefly.

   c) Describe about the working principle of fluorescent tube with a neat diagram.

   d) Explain the DC system of track electrification in electric traction briefly.

   e) Explain the operating principle of Indirect Arc Furnace with a neat sketch.

   f) Write a short note on metal arc welding.

   g) Differentiate between DC and AC arc welding.

3. Describe the factors affecting the electro-deposition in electrolytic cell in details.   10

4. Explain the factors on which the design of simple lighting schemes depends.   10

5. Describe the three modes of Heat Transfer in substances briefly.   10

6. Explain about the dielectric heating in charge between parallel metal plates. Also write their   10
   advantages and applications in details.

7. Write a short note on i) Seam welding ii) speed control of DC Traction motors by series-parallel   10
   control method.