

Code: CE5T6FE2, ME5T6FE2, EM5T6FE4

III B.Tech - I Semester – Regular Examinations - November 2014

UTILIZATION OF ELECTRICAL POWER
(Common for CIVIL, ME, ECM)

Duration: 3 hours

Marks: 5x14=70

Answer any **FIVE** questions. All questions carry equal marks

1. a) What are the advantages of electric drive ? 5 M
- b) What are the merits and demerits of individual and group drive? 4 M
- c) What are the factors govern the selection of a motor for a particular application ? 5 M
2. a) What are the advantages of electrical heating ? 4 M
- b) Explain Stefan's law ? 5 M
- c) A piece of an insulating material is to be heated by dielectric heating. The size of the piece is $10 \times 10 \times 3$ cm. A frequency of 20 megacycles is used and the power absorbed is 400 watt. Calculate the voltage necessary for heating and current that follows in the material. The material has a relative permittivity of 5 and power factor is 0.05 ? 5 M

3. Explain resistance welding in detail ? 14 M
4. a) Explain laws of illumination ? 4 M
- b) Explain electric discharge lamp in detail ? 5 M
- c) Explain Incandescent lamp in detail ? 5 M
5. a) Explain system of the electric traction and track electrification ? 7 M
- b) A sub urban electric train has a maximum speed of 65 kmph. The schedule speed including a station stop of 30 second is 43.5 kmph. If the acceleration is 1.3 kmphps, find the value of the retardation when the average distance between stops is 3 km. 7 M
6. a) Explain Electro – Deposition in detail ? 5 M
- b) Explain basic principle of electro depositing ? 4 M
- c) Explain laws of electrolysis ? 5 M
7. a) Explain the vapour compression refrigeration system in detail ? 5 M
- b) Explain vapour absorption refrigeration system in detail ? 6 M

c) Write short notes: 3 M
 i) Unit of refrigeration
 ii) Domestic refrigerator

8. a) Explain the Ignition system in detail ? 7 M

b) Explain spark ignition system ? 7 M