

Code: EE7T3

**IV B.Tech - I Semester – Regular / Supplementary Examinations  
November 2016**

**UTILIZATION OF ELECTRICAL ENERGY  
(ELECTRICAL & ELECTRONICS ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

1. a) Discuss the advantages and disadvantages of electric drive over other drives. 7 M
- b) Write the importance of heating & cooling curves. 7 M
2. a) What are the different types of heating? Write advantages of electric heating. 7 M
- b) Explain in detail about direct core type induction furnace. 7 M
3. Briefly explain about resistance welding and its applications. 14 M
4. a) Explain in detail about polar curves and its significance. 7 M

- b) Two lamps are hung at a height of 9 meters from the floor level. The distance between the lamps is one metre. Lamp one is of 500 cp. If the illumination on the floor vertically below the lamp is 20 lux, find the candle power of the lamp two. 7 M
5. a) Explain in detail about incandescent lamps and its advantages. 8 M
- b) Discuss various basic schemes of light control. 6 M
6. Explain why a DC series motor is ideally suited for traction purpose. Discuss the existing electric traction in India. 14 M
7. a) Explain the mechanics of train movement. 6 M
- b) A train is required to run between two stations 1.6 km apart at the average speed of 40 kmph. The run is to be made to a simplified quadrilateral speed time curve. If the maximum speed is to be limited to 64 kmph, acceleration to 2.0 kmphs and coasting and braking retardation to 1.6 kmphs and 3.2 kmphs respectively, determine the duration of acceleration, coasting and braking periods. 8 M
8. Explain in detail the factors affecting the specific energy consumption of an electric train operating on scheduled speed. 14 M