

Code: R7420201

R07

B.Tech IV Year II Semester (R07) Supplementary Examinations January 2014

UTILIZATION OF ELECTRICAL ENERGY

(Electrical and Electronics Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Explain what you mean by load equalization. How it is accomplished?
(b) Briefly discuss the types of industrial loads.
- 2 (a) Discuss the advantages, disadvantages and applications of induction heating.
(b) Explain the type of resistance heating in detail.
- 3 (a) Make a comparison between AC and DC welding.
(b) Explain the method of arc welding in detail.
- 4 (a) State and explain the laws of illumination.
(b) A 500 W lamp having MSCP of 800 is suspended 3 m above the working plane. Determine:
(i) Illumination directly below the lamp at the working plane.
(ii) Lamp efficiency.
(iii) Illumination at a point 2.4 m away on the horizontal plane vertically below the lamp.
- 5 (a) Explain the basic principles of light control in detail.
(b) Discuss the various factors while designing any lighting scheme.
- 6 (a) Explain the systems usually employed for track electrification.
(b) Explain the method of rheostatic braking in detail.
- 7 (a) Explain the speed-time curve for urban service.
(b) An electric train is to have acceleration and braking retardation of 0.8 km/hr/sec and 3.2 km/hr/sec respectively. If the ratio of maximum to average speed is 1.3 and time for stop is 26 sec, find the scheduled speed for a run of 1.5 km. Assume simplified trapezoidal speed time curve.
- 8 (a) What is specific energy consumption? Discuss the factors which affect the specific energy consumption.
(b) Differentiate between adhesive and total weight of an electric locomotive.
