

Code: EE5T3

**III B.Tech - I Semester – Regular/Supplementary Examinations
October 2019**

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

Duration: 3 hours

Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

11 x 2 = 22 M

1.

- a) Mention the different types of industrial loads.
- b) List two applications of a flywheel.
- c) State Stefan's law.
- d) Recall the principle of resistance welding.
- e) Mention the application of polar curves.
- f) Define photometry.
- g) List various types of braking methods.
- h) What is rheostatic braking?
- i) Define coefficient of adhesion.
- j) Define adhesive weight.
- k) What is electric plugging?

PART – B

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

3 x 16 = 48 M

2. a) What is an electric drive? What are its advantages?
Compare a group drive and an individual drive. 8 M
- b) Explain different types of drives. 8 M
3. a) Explain the construction and working of an induction furnace. 8 M
- b) Explain different types of welding. 8 M
4. a) Define the following terms: 8 M
- (i) Illumination
 - (ii) Glare
 - (iii) Luminance
 - (iv) Lamp efficiency.
- b) An incandescent lamp hangs from the ceiling of a room. The illumination below the lamp vertically downwards is 80 lux. When the illumination is measured at a distance of 2 m from the vertical from the ceiling, its value is 40 lux. Find the candle power of the lamp and its vertical distance from the floor. 8 M

5. a) With the help of neat diagram, explain the characteristic of quadrilateral speed time curve. Also derive the expression for distance travelled. 8 M
- b) Describe how plugging, rheostat braking and regenerative braking are employed with DC series motor? 8 M
6. a) Explain briefly the following 8 M
- (i) tractive effort during acceleration
 - (ii) tractive effort on gradient
 - (iii) tractive effort for resistance.
- b) What is specific energy consumption of a train? Describe the procedure of calculating the specific energy consumption of an electric train. 8 M