MAY-24-0508

EE-606 (Electrical Energy Utilization)

B.Tech-6th (CBCS)

Time : 3 Hours   Max. Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note: Attempt five questions in all, selecting one question each from Section A, B, C and D. Section E is compulsory.

SECTION-A

1. Compare the AC and DC system of railways electrification from the point of main line and suburban line railway service. (10)

2. State the main requirement for an ideal traction system. Name the different traction system. Give merits and demerits of electric traction over steam engine traction. (10)

SECTION-B

3. Give classification of various electric heating methods along with brief account of their working principle. (10)

4. Explain the working principle of arc furnaces and describe with the help of a sketch the construction and working of any one type of arc furnace. (10)

SECTION-C

5. Discuss, in detail, the principle of operation of (i) Ultrasonic welding (ii) Laser welding. (10)

6. What is resistance welding? What are its limitations? (10)

SECTION-D

7. Draw electric circuit of a refrigerator and explain its working. How can temperature inside the refrigerator be adjusted? (10)

8. State the merits and demerits of 'vapour compression system' over 'vapour absorption system'. (10)

SECTION-E (Compulsory)

9. (a) List the properties of a good heating element.

   (b) State the advantages of electric traction over other non-electrical system of traction.

   (c) What is the difference between electric arc welding and resistance welding?

   (d) What are the advantages of electric heating?

   (e) Discuss the relative merits and demerits of direct and indirect electric arc furnaces.

   (f) Enumerate important refrigeration applications.

   (g) What is the main characteristics feature of an air-refrigeration system?

   (h) Enlist the main requirements of a good refrigerant.

   (i) Define the refrigeration system and refrigerated system.

   (j) What are the application of dielectric heating? (10×2=20)