Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (Electrical Engineering) PT (Sem.–7)

ELECTRIC POWER UTILIZATION

Subject Code : BTEE-601

M.Code : 74090

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt ANY FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt ANY TWO questions.**

SECTION-A

Write briefly :

1) Classify various types of electric drives. Discuss their merits.

2) Suggest the electric drive used for the following applications: Textile mills, paper mills, cement mills and rolling mills.

3) Sketch the typical speed-time curves for main line service and suburban service with electric traction.

4) Define the term coefficient of adhesion.

5) What are different methods of electric heating?

6) What are the fluxes used in arc welding?

7) Define the terms: solid angle and luminous flux.

8) Mention various properties of a good illumination.

9) Draw a neat schematic of a refrigeration cycle.

10) Discuss the few applications of electrolytic process.

SECTION-B

11) Draw the speed torque curves of active and passive torque loads and justify their location in the 4 quadrant system.

12) Explain different types of traction systems.

13) Determine the efficiency of a high frequency induction furnace which takes 10 minutes to melt 1.815 Kg of aluminium, the input to the furnace being 5 kW and the initial temperature 15 degree celsius.

14) A lamp of 500 c.p. is placed 2 metres below a plane mirror which reflects 80% of the light falling on it. Determine illumination at a point 5 metres away from the foot of the lamp which is hung 5 metres above the ground.

15) Define and explain electro-chemical equivalent of a metal and show that 96500 C of charge is required to liberate one gram equivalent of a metal.

SECTION-C

16) What is Rheostatic braking? Explain the operation of DC shunt motor and DC series motor, when subjected to this type of breaking. Explain the torque-speed curves during braking.

17) Discuss in detail of :

a) Vapour compression refrigeration system.

b) Vapour absorption refrigeration system.

c) Thermo-electric refrigeration system.

18) Explain the various factors to be taken into account for designing schemes for street lighting, flood lighting and highway lighting.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.