

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.