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

**Total No. of Questions : 09**

**B.Tech.(Electrical & ElectronicsEngg./Electrical Engg./Electronics & ElectricalEngg.) (Sem.–6)**

# ELECTRIC & POWER UTILIZATION

**Subject Code : BTEE-601**

**M.Code : 71147**

**Date of Examination : 02-07-22**

**Time : 3 Hrs.** **Max. Marks : 60**

**INSTRUCTION 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

**1. Writebriefly :**

a) Draw the speed torque characteristics of induction motor.

b) Enlist the essential conditions for selection of motor for an electric drive.

c) Classify the electric heating methods.

d) What is the fundamental difference between electric arc welding and resistance welding?

e) Define Candle power.

f) What is current efficiency?

g) State the laws of illumination.

h) How the temperature inside a refrigerator is adjusted?

i) What are the different fields where air conditioning is found necessary?

j) Enlist the merits of single phase AC system for main and suburban line electrification of the railways.

## SECTION-B

2. A motor fitted with a flywheel supplies a load torque of 100 Nm for 20 seconds. During the no-load period, the flywheel regains its original speed. The motor torque is required to be limited to 500 Nm. Determine the moment of inertia of the flywheel. The no-load speed of the motor is 500 rpm and it has a slip of 10% on full load.

3. List the major applications of electrolysis. Explain how caustic soda is produced by electrolysis.

4. What is dielectric heating? What are the factors which decide the frequency and voltage of dielectric heating? Also, derive the expression for heat produced in a dielectric material.

5. A lamp having uniform candle power of250 in all directions is provided with a reflector which directs 70% of the total light uniformly on to a circular area of 12 metre diameter. The lamp is hung 7 metres above the area. Calculate the illumination at the edge of the surface with and without the reflector. Also, determine the average illumination over the area without the reflector.

6. Discuss the limitations of single catenary construction and explain alternative constructions to remove these limitations.

## SECTION-C

7. What do you understand by air conditioning? Explain the working of room air conditioner with the help of a suitable diagram.

8. What is the fundamental difference between resistance and arc welding? With the help of neat sketches, explain how the spot welding is carried out by spot welding machine.

9. Write short note on:

   a) Fluorescent tubes

   b) Single phase feeding arrangement.



**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**.