Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

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B.Tech.(EE/Electrical & Electronics Engg.) (2012 Onwards)
B.Tech.(Electronics & Electrical Engg.) (2012 to 2017)
(Sem.–6)

ELECTRIC POWER UTILIZATION

Subject Code : BTEE-601
M.Code : 71147

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. Write briefly :

a. What is meant by constant torque drive and constant power drive?

b. Enlist the classification of electric drives.

c. Write any two advantages and disadvantages of electric traction system over other traction system.

d. Why single phase system is preferred for main line railway services?

e. What properties are considered for selecting material for heating element?

f. Write and explain the Joule's law of electric heating.

g. What are the fluxes used in arc welding?

h. What are the qualities of good welding?

i. What is difference between illumination and light?

j. Write any four applications of electrolysis.

SECTION-B

2. State faraday's law of electrolysis and explain them clearly.

3. Explain vapour compression refrigeration cycle and show how cooling effect is produced? Describe electric circuit of a refrigerator.

4. Describe the duty cycle of main line and suburban trains.

5. How does designing of indoor and outdoor lighting systems differ? Explain method for designing indoor lighting system.

6. Explain dielectric heating. Explain the factor on which the dielectric loss in dielectric material depends.

SECTION-C

7. Two lamps are hung at a height of 9 meters from the floor level. The distance between the lamp is 2 meter. Lamp one is of 500CP. If illumination on the floor vertically below this lamp is 20 lux, find the candle power of the lamp two.

8. A motor equipped with a flywheel has to supply a load torque of 600N-m for 10 seconds followed by a no-load period long enough for the flywheel to regain its full speed. It is desired to limit the motor torque to 450N-m. What should be the amount of inertia of the flywheel? The no-load speed of the motor is 600rpm and it has a slip of 8% at torque 400N-m. Assume the motor torque characteristics to be a straight line in the range of operation. Motor has inertia of 10 kg-m^2.

9. Explain and draw the typical construction of electrical welding AC and DC set.

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.