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

Total No. of Questions : 09

B.Tech.(EE) (2012 Onwards E-III) (Sem.–7,8)

ENERGY EFFICIENT MACHINES

Subject Code : BTEE-805D

M.Code : 71945

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 has to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.**

SECTION-A

1. Write briefly :

a. What are the means of varying speeds of induction motor?

b. How duty/load cycle determines the thermal loading on the motor?

c. Name the two important parameters that attribute to efficiency of electricity use by induction motors.

d. List the applications of variable frequency drive control for motors operating on pumps and fans.

e. How the power consumption in case of centrifugal loads like pump, fan, etc. is proportional to cube of speed?

f. Name watt loss areas for improvement by using energy efficient motors.

g. What do you mean by 'energy audit'?

h. Why induction motors are so popular over all types of motors?

i. Write some strategies for correcting poor power factor in motors.

j. List out at least two advantages of electronic soft-starters.

SECTION-B

2. Why the energy efficient machines are needed? Justify your answer with one example.

3. Explain at least two automatic power factor control methods.

4. What is the special feature of two part tariff? For which category of consumers is it used? Discuss the importance of encouraging customers to use electricity during off- peak hours.

5. Why variable torque loads offer greatest energy savings? Explain electronic methods of speed controllers.

6. Explain the technical aspects of energy efficient motors.

SECTION-C

7. Write notes on :

   a. Energy efficient motor standards

   b. Induction motor characteristics

8. List out different types of energy efficient retrofits. Explain their application and benefits.

9. Explain adjustable-speed pulley system and eddy current adjustable-speed drives.

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.