# QUESTION BANK (K Scheme)

**Course: Energy Conservation and Audit** **Course Abbreviation: ECA**
**Course Code: (316327)** **Unit Test: I**
**Semester: 6K** **Program Code: EE**

## UNIT 1: Fundamentals of Energy Conservation and Management (08 marks) (CO1)

**2 Marks**

1) List any two functions of BEE, MNRE and MEDA related to energy conservation.
2) Define primary and secondary energy resources with two example of each.
3) Define Energy Audit as per Energy Conservation Act, 2001.
4) List any two designated consumers as per Energy Conservation Act.

**4 Marks**

5) Distinguish between Energy conservation and Energy audit.
6) State the needs and benefits of star labelling.
7) State salient features of Energy conservation Act-2001.
8) Differentiate star labelled electrical equipment from non-star labeled electrical equipment on following points :
   (i) Quality of material used
   (ii) Cost
   (iii) Efficiency
   (iv) Current Consumption
   (v) Power Factor (PF)
   (vi) Maintenance required

## CHAPTER 2: Energy Conservation in Electrical Machines (14 marks) (CO2)

**2 Marks**

9) List the energy conservation techniques in induction motor & transformer.
10) State the advantages of amorphous core transformer.
11) List any four advantages of each energy efficient transformer & energy efficient motors related to energy conservation.
12) State the need & benefit of soft starter.

**4 Marks**

13) Explain the energy conservation technique "By improving power quality of I.M." & Rewinding of Motor.
14) Explain when induction motors are run in star condition under 30% load condition, how energy is conserved?

15) Identify five and explain energy conservation techniques in transformer by:
    (a) Loading sharing (b) Transformer in parallel
16) Describe variable frequency drive with suitable diagram. State the benefits of Variable Frequency Drive (VFD).
17) Compare conventional induction motor with energy efficient motor on following points :
    (i) Power Factor (PF)
    (ii) Energy Conservation
    (iii) Losses
    (iv) Heat Dissipation
    (v) Cost
    (vi) Vibration

## CHAPTER 3: Energy Conservation in Electrical Installation system (16 marks) (CO3)

**2 Marks**

18) State the advantages of Installing High frequency electronic ballasts in place of conventional
19) Illustrate any two applications of use of electronic ballast in a fluorescent electric discharge lamp.
20) State any four causes of commercial losses in transmission and distribution system.
21) Write any two advantages of each of the following energy conservation devices used :
    (i) Maximum Demand Controller
    (ii) Automatic Power Factor Controller
    (iii) kVA Controller

**4 Marks**

22) Explain any four technical losses in transmission and distribution systems.
23) Explain the "mitigation of power theft" and "faulty meter replacement" for energy conservation techniques to reduce commercial losses.
24) State the working principle and operation of automatic power factor controller used in transmission & distribution system.
25) List the type of energy conservation techniques in lighting systems. Explain the energy conservation technique adopted for a lighting system using the energy efficient luminaries.
26) Compare on the basis of any four points the commercial and technical losses in the distribution system.
27) Explain Energy conservation techniques in Fan, electric vehicles and batteries (4 point each).