QUESTION BANK

Course: Electrical Energy Conservation & Auditing

Course Code: BTEE-701A-18

Semester: 7th / 8th

2 Marks

1. List any two functions of BEE related to energy conservation.

2. Define primary and secondary energy resources with two example of each.

3. State advantages of soft starters over conventional starters.

4. What are the reasons for high technical losses in transmission and distribution system?

5. State the advantages of Installing High frequency electronic ballasts in place of conventional ballasts for florescent lamp.

6. State the needs and benefits of star labelling.

7. Define power quality relating to energy conservation in motors.

8. Enlist losses in secondary distribution system.

9. List co-generation systems based on sequence of energy used.

10. Define time off day tariff.

11. List four relevant instruments to carry out energy audit in an industry.

12. Enlist the steps followed in walk through energy audit.

13. Distinguish between Energy conservation and Energy audit based on activities.

14. Illustrate Energy conservation in motor by load matching and operating in star mode.

15. Demonstrate the Energy Conservation Technique adopted in Lighting System by using energy efficient luminaries and using light controlled gears.

16. Identify energy conservation opportunities in transformer based on material technology.

17. Choose any four tariff schedule to reduce electricity bill of commercial consumer.

18. Differentiate the star labelled electrical equipment from non-labelled electrical equipment based on running charges, initial investment, design aspect and life span.

19. Identify the benefits and applications of availability-based tariff and power factor tariff.

20. Outline the step wise activities to be carried out to assess the performance of existing lighting system of electrical installation.

21. List out two benefits of energy conservation.

22. Outline any two features of energy efficient transformer.

23. State any four energy conservation techniques in Induction motor.

24. Summarise the technical losses taking place in primary transmission system.

25. List the benefits of maximum demand controller as energy conserving device.

26. State the components of availability-based tariff.

27. State the definition of energy audit as per energy conservation act.

28. List any four instruments used in energy audit with their application.

29. Explain the penalty clause of poor power factor while preparing energy bill.

30. Illustrate the benefits of time off day and peak off day tariff relevant to energy cost along with its impact on energy bill.

31. Explain about codes and standards.

32. What is meant by the term ‘energy audit’ and what are its objectives?

33. Explain about energy conservation schemes.

34. Define Energy audit.

35. Explain types of energy audit.

5 Marks

1. Discuss any five energy conservation techniques in induction motor.

2. Describe the effect of following on Induction Motor

(i) Voltage Unbalance (ii) Harmonic Distortion

3. Explain when induction motors are run in star condition under 30% load condition, how energy is conserved?

4. Discuss about Energy conservation techniques in transformer by:

(a) Loading sharing (b) Transformer in parallel

5. Suggest the energy conservation techniques in following cases: (i) Motor is running with

70% loaded condition. (ii) Motor is continuously loaded at 50%. (iii) Motor runs with 30% loaded condition but sometimes rises to 50% loading condition. (iv) Motor runs continuously under no-load condition.

6. State the comparison between Energy Efficient motors and conventional motors.

7. Explain scenario of transmission and distribution losses at national level.

8. State and explain any four technical losses in transmission and distribution systems.

9. State the various commercial losses in transmission & distribution system. Also, state energy conservation technique adopted for optimizing distribution.

10. List any three Energy conservation equipment's in transmission & distribution system. Describe the role of any one equipment in transmission & distribution system from the energy conservation point of view.

11. State the working principle and operation of automatic power factor controller used in transmission & distribution system.

12. Discuss the role of replacement of old lamps by new more energy efficient lamps in the conservation of energy.

13. Illustrate with neat sketch the working of automatic power factor corrector as an energy conservation device.

14. Identify and list the technical losses in electrical installation, suggest techniques to reduce them.

15. Explain the use of load factor and maximum demand tariff to minimize electrical consumption of electrical installation.

16. List significant features of soft starter.

17. Describe with sketch the working of Variable frequency drive as an energy conservation device.

18. Explain: Payback period and detailed audit in relevance to energy efficiency.

19. What are Energy Efficient Motors (EEMS).What factor effecting the energy Efficient motors?

20. Define voltage Unbalance. What are the causes and consequences of voltage unbalance?

10 Marks

1. Distinguish between Energy conservation and Energy audit based on activities. State the differences between energy conservation and energy audit.

2. State salient features of Energy conservation Act-2001.

3. Describe with flow chart, the detailed energy audit procedure.

4. Discuss the energy conservation opportunities in induction motor and its need.

5. Describe the energy conservation technique in power system by using reactive power compensator with their benefits and limitations.

6. Explain concept of energy audit? Also discuss the types of energy audit.

7. Explain in brief about electrical energy consumption and conservation in India and world.

8. Explain the factors affecting of energy efficient motors.

9. Discuss how capacitors can be employed for improvement of power factor of an electrical system. Explain about the location of capacitors for power factor improvement.

10. Explain the working of following instruments

(i) Thermocouples

(ii) Lux meters

(iii) Pyrometer

(iv) Data logger