8. (a) Write the significance of motivation of employees and their training in energy management. 7

(b) Write a short note on Force Field Analysis. 6

9. (a) Explain present Indian Scenario of supply and demand of Electrical Energy. 7

(b) What are the major sources of Reactive Power ? Why Reactive power compensation is required ? 6

OR

10. (a) What do you understand by Demand Side Management ? How is it carried out ? 7

(b) What are the causes of energy loss in motors ? What are the advantages of energy efficient motors ? 6

11. (a) What is a Boiler ? How performance evaluation of a boiler is carried out by Direct Method ? 7

(b) What are the major factors affecting the performance of Industrial Furnaces ? 7

OR

12. (a) What parameters should be monitored for evaluating the efficiency of a steam turbine ? 7

(b) Write a short note on Heat Exchangers and Heat Pumps. 7

NTK/KW/15/7551

Faculty of Engineering & Technology
Seventh Semester B.E. (Electrical Engg.) (C.B.S.)
Examination
ELECTIVE–I : ENERGY MANAGEMENT & AUDIT

Time—Three Hours] [Maximum Marks—80

INSTRUCTIONS TO CANDIDATES

(1) All questions carry marks as indicated.

(2) Solve Question No. **1 OR** Questions No. **2**.

(3) Solve Question No. **3 OR** Questions No. **4**.

(4) Solve Question No. **5 OR** Questions No. **6**.

(5) Solve Question No. **7 OR** Questions No. **8**.

(6) Solve Question No. **9 OR** Questions No. **10**.

(7) Solve Question No. **11 OR** Questions No. **12**.

(8) Due credit will be given to neatness and adequate dimensions.

(9) Assume suitable data wherever necessary.

(10) Diagrams and Chemical equations should be given wherever necessary.

(11) Illustrate your answers wherever necessary with the help of neat sketches.

(12) Use of non-programmable calculator is permitted.

1. (a) Explain in brief about Global and Indian Energy Scenario. 7

(b) What are the possible energy conservation opportunities in Lighting and HVAC systems in building ? 6

OR

2. (a) How do you differentiate between Energy Conservation and Energy Efficiency ? Explain with examples. 7

(b) Write in brief about the climate change and need of Carbon Trading. 6

3. (a) What are the objectives of Energy Management ? Explain in brief. 7

(b) Conventional 9 W Tubelight ballast was replaced with 2 W electronic ballast and 40 W Tubelights are replaced with 36 W Tubelights in 700 Nos of single lamp tubelight fittings in an industry. The cost of electronic ballast and 36 W Tubelight are Rs. 230/- and Rs. 50/- per unit. Calculate the Power and Energy saving potential, if the industry operates for 8000 hours in a year. Also calculate the investment required and the payback period for above ENCON proposal if the energy cost is Rs. 4/- kWh. 6

OR

4. (a) What are the duties and responsibilities of Energy Managers ? 7

(b) Explain the significance and highlights of Energy Conservation Act. 6

5. (a) Draw a typical input-output diagram for a process and indicate various energy inputs. 7

(b) What do you understand by material and energy balance diagrams ? Explain with examples. 7

OR

6. (a) Explain how processes are represented using flow-charts with an example. 7

(b) Two methanol-water mixtures are contained in separate flasks. The first mixture contains 40% weight methanol and the second contains 70% weight methanol. If 200 gm of first mixture is combined with 150 gm of second, what are the mass and composition of the product ? 7

7. (a) What is the role of top management in Energy Management ? 7

(b) What do you understand by SCADA Systems ? How are they useful in Energy Management ? 6

OR