

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

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

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Contd.

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

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