

Electrical Energy Conservation and Management (EE-920)

Time: 3 hours

Answer any FIVE questions

F.M.:70

- 1.(a) What are the necessities of energy conservation in our country? [4+1]
(b) Describe the Energy conservation highlighting (i) electricity power generation and utilization; (ii) relationship between GDP and Energy consumption in our country.
- 2.(a) What are the key elements of 'electricity conservation and management' in industrial lighting system? [4+10]
(b) How the electricity is related with i) improvement of light sources; ii) use of daylight and iii)use of other modern equipment.
- 3.(a) Discuss the 'energy saving potential in Indian industries'. [4+10]
(b) Describe the energy losses and conservation measures in different stages – from electricity generation (coal base thermal power plant) to utilization.
- 4.(a) Name the various electrical equipment which consume major portion of electricity in rural area on rural area [3+3+8]
(b) Write some guidelines for the farmers about the electricity conservation.
(c) How the induction motor performance depends on voltage and frequency variation? –Explain with suitable graph.
5. (a) Define Energy Audit and its requirements in an organization? [4+10]
(b) Discuss the methodologies involved in Pre-Audit Phase, Preliminary Energy Audit, Detailed Energy Audit and the typical Conclusive Remarks on the Report.
- 6.(a) What are the different aspects associated with well planned reduction in Energy Bills of an industrial organization? [4+10]
(b) What is the full form of EMIS? Indicate two important management strategies through different hardware components and suitable software for Energy Benchmarking.
7. (a) Enlist different Energy losses in induction motor? [4+10]
(b) Describe with graphs and patterns of curves for efficiency, power factor and losses with loads of induction motor and suggest the design and development of an energy efficient induction motor.
8. Write short notes on *any two*: [7 x2]
(a) New and Renewable Energy Sources available in India;
(b) Boiler losses and their minimization;
(c) Power Quality and its improvement;
(d) Reactive Power Management.