

Electricity Conservation and Management (EE-920)

Time: 3 hours

Full Marks:70

Answer any FIVE questions

1. (a) What is Energy Audit? State and explain different steps in energy audit activities in an organization. Enlist atleast five concluding remarks as suggested in a typical energy audit report.
(b) Describe the contributions of different loss components in electric motors. Discuss different considerations in improving the design and construction of energy efficient induction motors. (7+7)
2. (a) How do you explain the importance of Power Factor in practice and in energy audit? Explain the techniques of improving power factor in electricity distribution and utilization?
(b) What do you understand by Power Quality? How does it cause poor quality of supply and metering. Also describe the techniques of improving this quality in operation and performance of electrical devices and equipment. (7+7)
3. (a) What is Energy Survey and what do you mean by Energy Management? Energy management helps Energy Conservation. Explain.
(b) Considering a typical schematic diagram describe a computer aided energy information management system (EIMS). (7+7)
4. (a) Describe i)Indian Energy scenario highlighting resources and consumption, ii)Electric power generation and utilisation pattern in India
(b) What are the necessities of i)Electricity Conservation and ii)Utilisation of Renewable Energy Sources in our Country. (7+7)
5. (a) Discuss on energy management in industrial lighting
(b) Explain i)Energy tracking and control system (ETRC) in lighting system, ii)Use of day light for energy conservation. (7+7)
6. (a) Explain how an induction motor performs on i)Under voltage and ii)Over voltage conditions from energy conservation point of view.
(b) Identify the areas where mechanical and electrical losses are involved in an electric motor driven pumpset used in agriculture sector. Suggest the necessary measures to reduce these losses. (7+7)
7. (a) "Savings in fuel and electricity is possible by improving boiler efficiency" justify this statement.
(b) Discuss on energy saving potential of industries of India and mention the energy intensive ones. (7+7)
8. Write short notes on a) National Policy on Energy Conservation b) Demand and Supply side management (7+7)