



**Module Number: ME8335**

**Module Name: Energy Management**

**[Two Hours]**

**[Answer all questions, each question carries 5 marks]**

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**Q1.** An energy audit is required when a company has established an energy management system, and when at least some of the basic energy management measures to save energy have been identified.

- a) What do you understand by an energy audit? [1 Mark]
- b) List out the three levels of energy audits done in industries. [1.5 Marks]
- c) List out five basic energy management measures to be considered to save energy in an industry. [2.5 Marks]

**Q2.** The role of the energy manager with regard to the profitability of an organization has gained prominence over the years with the increasing uncertainty over cheap and stable fossil fuel sources. Energy in the form of electricity and thermal energy are both expensive at present and requires to be managed effectively.

Managing energy is not just a technical challenge, but one of how to best implement those technical changes within economic limits, and with a minimum of disruption.

- a) What are the objectives of an energy manager in an industry? [1 Mark]
- b) Briefly explain the four (4) major techniques used by an energy manager to optimize energy usage in an industry. [2 Marks]
- c) Once the organization of energy management program is established and lines of responsibilities defined in an industry, the program must be implemented and managed. What are the remaining primary functions of an energy manager to fulfill in an industry? [2 Marks]

- Q3.**
- a) Discuss in brief what the ISO 50001 Energy Management System enables organizations to do. [2 Marks]
  - b) Explain how the PDCA Process is implemented in ISO 50001 (Use the Energy Management System Model in the explanation). [3 Marks]

Q4. a) State three options available to an Energy Manager when optimizing energy usage. Briefly discuss each option.

[2 Marks]

b) "The key to a successful energy management program is the dedication and commitment from top management". Discuss the significance of this statement and state three methods that you will use to get the attention and support of the Top Management.

[3 Marks]