

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 121858

Roll No.

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**B.Tech.**

(SEM. VIII) THEORY EXAMINATION 2013-14

**ENERGY EFFICIENCY AND CONSERVATION**

*Time : 3 Hours*

*Total Marks : 100*

**Note :- Attempt all questions. All questions carry equal marks**

1. Attempt any two parts of the following : (10×2=20)

- (a) Discuss the principle of energy conservation. What are the advantages and disadvantages of energy conservation ?
- (b) What do you mean by "Energy Conservation in small scale industries and large scale industries" ? Explain in detail.
- (c) What do you understand by "STRATEGY OF ENERGY AUDIT" ? Discuss the aim of energy audit.

2. Attempt any two parts of the following : (10×2=20)

- (a) Write short notes on the following :
  - (i) Energy audit of Electrical systems.
  - (ii) HVAC
- (b) Discuss the concept and scope of demand side management. What are advantages and disadvantages of demand side management ?
- (c) Write short notes on the following :
  - (i) DSM Strategy
  - (ii) Evolution of Demand Side Management.

3. Attempt any two parts of the following : (10×2=20)

- (a) What do you understand by "national and international experiences with DSM" ? Explain in detail.
- (b) What do you understand by "VOLTAGE PROFILES" in power system environments ? What are the different methods for improvement of voltage profiles in power system environments ?
- (c) Explain the following :
  - (i) VAR requirements and Power factor
  - (ii) Voltage drop calculations.

4. Attempt any two parts of the following : (10×2=20)

- (a) Discuss the working principle and equivalent circuit of VAR control devices in power system networks. What are the features followed by VAR control devices in power system networks ?
- (b) Explain the following :
  - (i) Capacitors units and bank rating
  - (ii) Protection of capacitors and switching.
- (c) What do you mean by "Voltage Instability" in power system networks ? What are the various causes of voltage instability in power system networks ? How it is improved in power system networks ?

5. Attempt any two parts of the following : (10×2=20)

- (a) What do you mean by "Energy efficient motors" ? What are the special features associated with such motors ?

- (b) Write short notes on the following :
- (i) Energy efficient windows
  - (ii) Distribution Code and Electricity Bill 2003.
- (c) Explain the following :
- (i) Load scheduling/shifting
  - (ii) Day lighting timers
  - (iii) Indian Electricity Act 1956
  - (iv) UPS Selection.