

Paper ID & Roll No. to be filled in your Answer Book

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**B.Tech.**

**UTU (VIIIth SEM.) (ODD SEM.) EXAMINATION, 2013-14**

**ENERGY CONSERVATION**

Time : Three Hours]

[Max. Marks : 100

Note: Answer all questions.

1: Write short note on any four of the following. (4×5=20)

- A) Need and objective of energy audit.
- B) Detailed energy audit with steps and purposes.
- C) Industrial energy audit.
- D) Safety consideration regarding energy audit.
- E) Tools and instruments used for energy audit.
- F) Discuss calorific value of fuel.

- A) Distinguish between proximate analysis of coal and ultimate analysis of coal.
- B) i) What is insulation; classify insulation according to their temperature range.
- ii) Discuss types, selection and application of refractory.
- C) Explain with the help of a neat diagram; the arrangement of the "fluidized bed combustion boilers".

3. Answer any two of the following.

(2×10=20)

- A) What are the properties of steam? Discuss steam leakage with causes?
- B) Explain condensate and flash steam recovery system?
- C) Explain Cogeneration and Trigeneration with their application.

A) Explain the advantage of waste heat recovery and discuss the operation of

i) Heat pipe

ii) Economizer

iii) Heat exchanger

B) Describe compressor, with classification and define compressor efficiency?

C) Explain flow control strategies and energy conservation opportunities in pumping system?

5. Answer any two of the following. (2×10=20)

A) Discuss Star connection system.

B) Explain Power factor improvement and its benefit.

C) Explain:

- i) Losses in induction motors.
- ii) Factors affecting motor performance.
- iii) Energy efficient motors.

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