Code No: D6407 **R09**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech II - Semester Examinations, March/April 2011
ENERGY MANAGEMENT AND THERMAL ENERGY CONVERSION
(POWER ENGINEERING AND ENERGY SYSTEMS)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks
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1. a) Explain the necessary steps and general principles of energy management program.
   b) Explain the functions and language of energy manager. [6+6]

2. a) Define energy audit and explain the steps in energy auditing and surveying.
   b) Explain the significance of Pie charts, Sankey diagrams and load profiles in conducting energy audit. [6+6]

3. a) List out the technologies for energy conservation.
   b) Explain the significance of critical assessment of energy usage in the conservation of energy. [6+6]

4. a) Describe Indian Electricity Act.
   b) Explain the rules for conservation of energy and materials. [6+6]

5. a) Explain the guidelines to identify waste heat and feasibility study of waste heat recovery.
   b) Explain the working of shell and tube heat exchanger with heat sketch. [6+6]

6. a) Derive the expression for LMTD of a counter flow heat exchanger.
   b) Explain the working of liquid -to- gas heat exchanger with heat sketch. [6+6]

7. a) Explain the working of heat pump with heat sketch.
   b) Derive the expression for effectiveness of a cross flow heat exchanger in terms of NTU. [6+6]

8. a) Explain the steps in energy audit of a Manufacturing Industry.
   b) Explain the working of Incinerator with neat sketch. [6+6]

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