

**APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY  
08 PALAKKAD CLUSTER**

Q. P. Code :ES0819022-I

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Name .....

Reg.No:.....

**SECOND SEMESTER M.TECH. DEGREE EXAMINATION JUNE 2019**

Branch: Electrical & Electronics Engineering

Specialization: Energy Systems

**08EE6022 ENERGY CONSERVATION IN THERMAL SYSTEMS**

**Time:3 hours**

**Max.marks: 60**

**Answer all six questions.**

**Modules 1 to 6:**Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

<b>Q.no.</b>	<b>Module 1</b>	<b>Marks</b>
<b>1.a</b>	List out various instruments used for energy auditing.	<b>3</b>
	<b>Answer b or c</b>	
<b>b</b>	Elucidate different energy conservation and efficiency schemes.	<b>6</b>
<b>c</b>	Illustrate the significance of optimum pipe sizing in a steam power plant. Explain it with different design steps.	<b>6</b>
<b>Q.no.</b>	<b>Module 2</b>	<b>Marks</b>
<b>2.a</b>	Write a short note on systematic approach to steam pricing	<b>3</b>
	<b>Answer b or c</b>	
<b>b</b>	Formulate different types of data requirements for a comprehensive energy audit.	<b>6</b>
<b>c</b>	What are the limitations of current technologies? Explain in detail.	<b>6</b>
<b>Q.no.</b>	<b>Module 3</b>	<b>Marks</b>
<b>3.a</b>	What is linear programming approach of energy optimization?	<b>3</b>
	<b>Answer b or c</b>	
<b>b</b>	Differentiate thermostatic and thermodynamic traps with examples	<b>6</b>

- c** With neat flow chart Elucidate the concept of effective management of energy use **6**

Q.no.	Module 4	Marks
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- 4.a** Write a short note on combustion air preheating **3**

**Answer b or c**

- b** Explain the concept of heat exchange, mixing and expansion in the context of energy systems. **6**

- c What is meant by Distillation? Explain about any Distillation process. 6

Q.no.	Module 5	Marks
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- 5.a** Define the term thermo economics. List different processes under thermo economics. **4**

**Answer b or c**

- b**
- How do you relate system interactions and economics?
- 8**

- c** Compare the concepts of separation and heat transfer in the context of energy systems. **8**

Q.no.	Module 6	Marks
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- 6.a** Briefly explain about waste heat boiler. **4**

**Answer b or c**

- b** Briefly Explain the importance of load curves. **8**

- c** Define boiler efficiency. Explain the methods for improving the boiler efficiency **8**