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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S8 (S,FE) Examinations September 2026 (2019 Scheme)

Course Code: EET424

Course Name: ENERGY MANAGEMENT

Max. Marks: 100 **Duration: 3 Hours**

PART A

Answer all questions, each carries 3 marks. Marks

1		List any six general principles of energy management.	(3)
2		Define energy audit report.	(3)
3		Describe various losses in a motor.	(3)
4		Explain cascade efficiency of an electrical system.	(3)
5		Enumerate the advantages of improving power factor in electrical systems.	(3)
6		Explain Time of Day pricing.	(3)
7		Explain any two properties of steam.	(3)
8		List various fuel economy measures in furnaces.	(3)
9		Write short notes on Computer Aided Management Systems.	(3)
10		List the advantages of present value method.	(3)

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

11	a)	Explain the need for conducting an Energy Audit. Describe the different types of Energy Audit.	(10)
	b)	Write a short notes on Building Management Systems.	(4)

OR

12	a)	List the instruments used in Energy Audit. Explain any three instruments used for energy auditing along with their functions.	(8)
	b)	Describe various steps involved in energy management planning?	(6)

Module II

13	a)	Explain the various design measures that can be adopted to improve the efficiency of an electric motor.	(8)
	b)	Explain the measures taken to improve the efficiency of transformers.	(6)

OR

14 a) Explain: i) features of an energy efficient motor. ii) the necessity of load matching. (7)

b) Discuss in detail the energy saving opportunities in lighting systems. (7)

Module III

15 a) A 3-phase, 50 Hz, 400 V motor develops 74·6 kW, the power factor being 0·75 lagging and efficiency 93%. A bank of capacitors is connected in delta across the supply terminals and power factor raised to 0·95 lagging. Determine the kVAR rating of the capacitors connected in each phase. (8)

b) Define Demand Side Management (DSM) and explain its benefits. (6)

OR

16 a) Explain the different methods used for peak demand control. (7)

b) Explain the concept of ancillary services and classify their types. (7)

Module IV

17 a) Describe different energy saving opportunities of Refrigeration and Air Conditioning Systems. (7)

b) Discuss the need for boiler blowdown and explain different methods of boiler blowdown. (7)

OR

18 a) Explain the Coefficient of Performance (COP) of an HVAC system. Differentiate between COP and efficiency. (8)

b) Describe two types of co-generation systems. (6)

Module V

19 a) Explain the Internal Rate of Return (IRR) and Average Rate of Return (ARR) methods used for the financial evaluation of energy projects. (6)

b) Describe the Life Cycle Costing (LCC) method and explain how it is used in the economic evaluation of energy projects of economic evaluation. (8)

OR

20 a) Explain the Simple Payback Period method used for selecting energy projects. State its advantages and limitations. (7)

b) Explain the following: i)Time value of money ii) Cash flow model (7)

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