Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S6 (S,FE) (FT/WP) (S4 PT) Examination December 2025 (2019 Scheme)

Course Code: EET322

Course Name: RENEWABLE ENERGY SYSTEMS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks. Marks

1		Explain the causes and effects of Global warming.	(3)
2		Give an account of Indian energy scenario	(3)
3		Explain about central tower collector with relevant diagrams.	(3)
4		List and explain different types of Solar PV panels	(3)
5		Draw the wind speed characteristics of a wind turbine	(3)
6		Explain the variable speed drive scheme in wind energy conversion system.	(3)
7		Classify Small hydro plants based on head and power output.	(3)
8		Explain about the advantages & disadvantages of OTEC systems	(3)
9		Describe the need for energy storage in renewable integration.	(3)
10		Explain how power is produced from satellites?	(3)

PART B

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

Module I

11	a)	List out the advantages & disadvantages of conventional sources of energy.	(8)
	b)	Write short notes on various air pollutants & their harmful effects.	(6)

OR

12 a) Explain the concept of sustainable development with reference to environment, economy and Energy. (6)

b) Explain about the importance of UNFCCC & Kyoto protocol (8)

Module II

13 a) With relevant diagrams, explain about the working of pyrheliometer (8)

b) With neat block diagram, explain about the different types of solar concentrators (6)

OR

14 a) Explain the working of MPPT using buck-boost converter. (6)

b) With neat block diagram, explain the working of a grid connected Wind Energy Conversion system. (8)

Module III

15 a) Explain the construction and working of Horizontal Axis wind turbine with the help of relevant diagrams (8)

b) Explain the site selection factors of wind power plant (6)

OR

16 a) Explain the major components of a small hydropower project using necessary diagrams (8)

b) Explain about the selection of different types of turbines used in small hydro and draw its characteristic graphs with respect to efficiency. (6)

Module IV

17 a) With a neat diagram explain hybrid cycle OTEC system (8)

b) List out the site selection criteria for OTEC system. (6)

OR

18 a) With relevant diagrams, explain the working of double basin of tidal power plant. (8)

b) Explain the terms tidal range, ebb cycle and flood cycle of a tidal power plant (6)

Module V

19 a) Explain the following Bio-chemical biomass conversion technologies. (8)
(a) Anaerobic digestion (b) Ethanol fermentation

b) With neat diagram, explain the operation of flywheel storage (6)

OR

20 a) Explain the working of KVIC model biogas plant using necessary diagrams. (8)

b) Explain the working of Pumped Hydro Energy Storage (6)

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