Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S4 (R) (FT/WP) Examinations April 2026 (2024 Scheme)

Course Code: PEEET412
Course Name: RENEWABLE ENERGY SOURCES

Max. Marks: 60 Duration: 2 hours 30 minutes

PART A

(Answer all questions. Each question carries 3 marks)

		CO	Marks
1	List different types of renewable energy resources.	CO1	(3)
2	Define tip speed ratio in wind turbines.	CO2	(3)
3	What is solar constant?	CO3	(3)
4	List advantages and disadvantages of solar PV systems.	CO3	(3)
5	Explain the concept of waste-to-energy.	CO4	(3)
6	Explain double basin tidal energy system.	CO4	(3)
7	Discuss the environmental impacts of OTEC	CO5	(3)
8	What is green hydrogen?	CO5	(3)

PART B

(Answer any one full question from each module, each question carries 9 marks)

Module -1

			CO	Marks
9	a)	Explain the principles of renewable energy and their importance in modern energy systems.	CO1	(6)

	b)	Discuss the social implications of renewable energy.	CO1	(3)
10	a)	Explain types of wind turbines (HAWT & VAWT) with diagrams.	CO2	(6)
	b)	What are factors affecting wind power generation?	CO2	(3)

Module -2

11	a)	Explain the classification of PV systems with neat diagram.	CO3	(6)
	b)	With a neat diagram explain Solar tower electric power plant .	CO3	(3)
12	a)	Explain the measurement of solar radiation using the following instruments with neat diagrams: a) Pyrheliometer b) Pyranometer c) Sunshine Recorder	CO3	(9)

Module -3

13	a)	Discuss various technologies used in waste-to-energy conversion such as incineration, gasification, and anaerobic digestion. Explain their working principles.	CO4	(9)
14	a)	Explain the working of a double basin tidal power plant with diagram.	CO4	(6)
	b)	Define single ebb and single tide tidal systems.	CO4	(3)

Module -4

15	a)	Explain working principle and classification of OTEC systems.	CO5	(7)
	b)	Explain the operating principle of fuel cells.	CO5	(2)
16	a)	Explain hydrogen production using electrolysis method. Discuss benefits and challenges associated with hydrogen energy.	CO5	(9)

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