Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree (S, FE) Examination May 2023 (2019 Scheme)

Course Code: MRT433

Course Name: RENEWABLE ENERGY

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

PART A

Answer all questions, each carries 3 marks. Marks

1	Differentiate between renewable and non- renewable energy resources.	(3)
2	What are concentrating collectors? List the various types.	(3)
3	Discuss the basic principle of OTEC.	(3)
4	List out the advantages and limitations of tidal energy.	(3)
5	What do you mean by yaw control in horizontal axis wind turbines?	(3)
6	Differentiate between horizontal and vertical axis wind machines.	(3)
7	What is anaerobic digestion? Explain briefly.	(3)
8	Draw the schematic of a KVIC type of bio gas plant.	(3)
9	What is meant by small hydro project? Give its classifications.	(3)
10	Explain the working principle of a fuel cell.	(3)

PART B

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

Module I

11		What are energy resources? Explain their classification.	(14)
		OR	
12	a)	With the aid of a neat diagram, explain the working of a central tower collector type solar thermal electric plant.	(9)
	b)	Explain grid interactive solar PV system with a neat diagram.	(5)

Module II

13	a)	Draw the block diagram and explain the working of Anderson cycle based OTEC system.	(10)
	b)	Explain the site-selection criteria for OTEC plants.	(4)
		OR	
14		With a neat sketch explain the major components of a tidal power plant.	(14)

Module III

15 Draw the block diagram of a wind energy conversion system and explain the parts and their functions (14)

OR

16 Explain horizontal axis wind turbine with necessary diagrams. (14)

Module IV

17 With a neat schematic diagram, explain the biomass gasification (14)

OR

18 Compare the construction and performance of floating drum type and fixed dome type biogas plants with the help of neat sketches. (14)

Module V

19 Draw and explain the layout of a micro hydro project. (14)

OR

20 Explain the operation of a Phosphoric Acid fuel cell with the help of a suitable diagram. (14)

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