K. K. Wagh Institute of Engineering Education & Research, Nashik

(An Autonomous Institute From A.Y. 2022-23)

WINTER-2025	
Exam Seat No.:	
Academic Year:2025-2026	Semester:V
Class:TY	Program:B.Tech
Branch Code:CHE	Pattern:2023
Name of Course:Renewable Energy	Course Code:2307306A
Max. Marks:60	Duration:2.30 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains _____page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

		Marks	CO
Question No. 1			
1a)	Give an example of indirect energy conversion and explain the steps involved in the process.	(6)	1
Question No. 2			
2a)	What is meant by anaerobic digestion? What are the factors that affect bio-digestion?	(6)	1
Question No. 3			
3a)	Define Altitude angle, Incident Angle, Zenith angle and declination angle.	(8)	2
	OR		
3b)	What are the main components of flat plate solar collectors, explain the function of each.	(8)	2
3c)	What are the reasons for variations in solar radiation reaching the earth?	(8)	2
	OR		
3d)	How solar Air Collectors are classified? What are the main applications of drier?	(8)	2
Question No. 4			
4a)	Explain the method of converting waste into energy by anaerobic digestion.	(8)	2, 3
	OR		
4b)	What are the different methods used for the treatment of Industrial waste.	(8)	2, 3
4c)	Explain the method of converting waste into energy by incineration.	(8)	2, 3
	OR		
4d)	Write a note on industrial waste and its classification.	(8)	2, 3
Question No. 5			
5a)	What are the different methods for hydrogen production? Explain in Brief.	(8)	3
	OR		

5b)	What is electrolysis? Describe the more popular method of hydrogen production.	(8)	3
5c)	Describe Thermo-chemical method for hydrogen production.	(8)	3

OR

5d)	What is Westinghouse electro-chemical Thermal sulfur cycle?	(8)	3

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