

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2023****Subject Code:3150507****Date:05-12-2023****Subject Name: Energy Technology****Time: 10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Name two reasons why steam is used as a heat transfer medium.	03
	(b) Give an example of Energy savings by reducing the work done by steam.	04
	(c) Describe Pyrolysis system with neat figure.	07
Q.2	(a) What is energy efficiency? Discuss with any one example.	03
	(b) Differentiate between proximate and ultimate analysis.	04
	(c) Derive the formula for calculating maximum torque and maximum axial thrust.	07
	OR	
	(c) Explain photosynthesis process and also write necessary conditions for it.	07
Q.3	(a) Write down three reasons to control the rotor speed.	03
	(b) Explain different types of electrodes in brief.	04
	(c) Describe any one type of the solar refrigeration system.	07
	OR	
Q.3	(a) Name two functions of a steam trap.	03
	(b) Differentiate between hydrogen- oxygen fuel cell and fossil fuel cell.	04
	(c) Formulate and derive the Betz coefficient. Show each step and write your assumptions clearly.	07
Q.4	(a) Discuss classification of WECS.	03
	(b) Draw the flow sheet of the community biogas plant.	04
	(c) Discuss advantages and disadvantages of fuel cell.	07
	OR	
Q.4	(a) Explain why low-pressure steam is more efficient?	03
	(b) Discuss classification of solar energy storage in detail.	04
	(c) Describe any one type of the solar water heating system.	07
Q.5	(a) List out desired properties of an ideal ion exchange membrane electrolyte.	03
	(b) What are the precautions to be taken while steam pressure is reduced for a process?	04
	(c) Explain the correlation between energy and environment in detail.	07
	OR	
Q.5	(a) Write a short note on world energy future.	03
	(b) Define energy audit and write its importance.	04
	(c) Write a short note on conversion efficiency & polarization.	07
