

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (OLD) EXAMINATION – WINTER 2023****Subject Code:2170505****Date:01-12-2023****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) Explain in brief Energy Management	03
	(b) Discuss the conventional and non-conventional sources of energy	04
	(c) What are Solar Collectors? Discuss focusing and non-focusing type of Collectors with diagram	07
Q.2	(a) State any six applications of Solar Energy	03
	(b) Discuss in brief proximate and ultimate analysis of Coal	04
	(c) Describe with neat sketch the working of main components of Wind Energy Conversion System	07
	OR	
	(c) Explain with diagram the working of Solar Pond	07
Q.3	(a) Define Caking and Coking	03
	(b) Discuss the Gasification technique with diagram and state its benefits versus direct use of coal as a fuel	04
	(c) Classify biogas plants and explain the methods of maintaining and starting biogas plants of any one type	07
	OR	
Q.3	(a) Discuss the types of coal in detail	03
	(b) Explain the fundamental principle of Geothermal Energy and Geothermal resources	04
	(c) What is washing of coal? Describe washability curve in detail	07
Q.4	(a) Define fusion and fission	03
	(b) Discuss the Ion-Exchange Membrane Cell and its application	04
	(c) What is MHD? Explain the design problems involved in the development of MHD	07
	OR	
Q.4	(a) Define Calorific value of a fuel and why is it an important parameter?	03
	(b) Discuss about the storage and transportation as well as safety management while handling fuel like Hydrogen and Methanol	04
	(c) Discuss in detail Nuclear Fuel Cycle along with the diagram	07

- Q.5 (a)** List the site selection criteria for Biogas Plant **03**
- (b)** Discuss Solar energy storage system (Thermal & Chemical) **04**
- (c)** Explain the Open cycle MHD system for power generation with neat sketch **07**
- OR**
- Q.5 (a)** Discuss in brief the site selection criteria for developing a Wind farm **03**
- (b)** List the various methods of production of Hydrogen from different sources. **04**
- (c)** Explain the methods of utilization of Tidal Energy and state principle of OTEC system for power generation **07**
