Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–V (NEW) EXAMINATION – WINTER 2020

Subject Code:3150507 **Date:22/01/2021**

Subject Name:Energy Technology

Time:10:30 AM TO 12:30 PM **Total Marks: 56**

Instructions:

1. **Attempt any FOUR questions out of EIGHT questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			MARKS
Q.1	**(a)**	Differentiate between conventional & non-conventional Energy sources.	**03**
	(b)	Discuss on world energy futures.	**04**
	(c)	List out all the commercially available waste heat recovery devices. Explain any one device with neat sketch.	**07**
Q.2	**(a)**	Discuss selection and applications of refractories.	**03**
	(b)	Explain types of Energy Audit.	**04**
	(c)	Explain proximate and ultimate analysis of coal in detail.	**07**
Q.3	**(a)**	Define steam traps. State the functions of steam traps.	**03**
	(b)	Explain types of insulations and also discuss its applications.	**04**
	(c)	Discuss in detail about energy conservation. Also state its importance.	**07**
Q.4	**(a)**	Define: (i) Beam Radiation, (ii) Solar Altitude, (iii) Solar Azimuth Angle	**03**
	(b)	What are the advantages and disadvantages of fuel cell?	**04**
	(c)	Explain solar pond briefly. What are the applications of solar pond?	**07**
Q.5	**(a)**	List all the factors affecting biodigestion.	**03**
	(b)	What are the advantages and disadvantages of concentrating collectors over flat plate collectors?	**04**
	(c)	Categorize different types of fuel cell and describe Molten Carbonate Fuel Cell (MCFC) with neat diagram.	**07**
Q.6	**(a)**	Define Photosynthesis. What are the conditions necessary for photosynthesis?	**03**
	(b)	Define biomass and list biomass energy resources.	**04**
	(c)	List out various types of instruments for measuring solar radiation and explain any one.	**07**
Q.7	**(a)**	What are the techniques suggested for maintaining the biogas production?	**03**
	(b)	Enlist various applications of solar energy.	**04**
	(c)	Describe with neat sketch the working of a wind energy system (WECS) with main components.	**07**
Q.8	**(a)**	State different applications of wind energy.	**03**
	(b)	Describe the main considerations in selecting a site for wind generators.	**04**
	(c)	Describe construction and working of KVIC digester.	**07**

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