Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V • EXAMINATION – SUMMER • 2014

Subject Code: 152104 **Date: 17-06-2014**

Subject Name: Fuels, Furnaces and Refractory

Time: 10:30 am - 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.**

Q.1	**(a)**	Differentiate between LTC and HTC.	**07**
	(b)	What is fuel? Discuss in detail about comparison and contrast of Solid, Liquid and Gaseous fuels.	**07**
Q.2	**(a)**	Write short Notes on i)Nuclear Fuels ii) Biomass	**07**
	(b)	Define refractoriness under load (RUL) and explain RUL test.	**07**
		OR	
	(b)	What is caking power of coal? Explain British Standard Swelling number test.	**07**
Q.3	**(a)**	Compare Batch Furnaces and Continuous Furnaces used For heat treatment of metals and alloys.	**07**
	(b)	What is the difference between Natural draught, Induced Draught and Balanced draught.	**07**
		OR	
Q.3	**(a)**	Short note on Electric Arc Furnace used for steel melting.	**07**
	(b)	Draw flow sheet for wet or dry process of fireclay brick manufacture and mention different stages of firing.	**07**
Q.4	**(a)**	Explain the working principle of muffle furnace with figure. .	**07**
	(b)	What are the general requirements of a refractory material?	**07**
		OR	
Q.4	**(a)**	How waste heat can be recovered from Furnace flue gases?	**07**
	(b)	Explain optical pyrometer with its principle, construction, working and advantages.	**07**
Q.5	**(a)**	Write short note on 1) Water gas 2) Solar energy	**07**
	(b)	Short note on Seyler's classification.	**07**
		OR	
Q.5	**(a)**	Short note on Producer gas.	**07**
	(b)	Explain with diagram the working principle of temperature measurement by radiation pyrometer.	**07**

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