Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE –SEMESTER VI (New)– EXAMINATION – SUMMER 2016

Subject Code:2163603 **Date:13/05/2016**

Subject Name: Refractories -I

Time:10.30 to 1.00 **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)**	Define P.C.E. and R.U.L. State their differences.	**07**
	(b)	Describe the GOST classification of refractories.	**07**
Q.2	**(a)**	Describe the Island structure, Group structure, Ring structure, Sheet structure found in silicate materials.	**07**
	(b)	Discuss the polymorphic transformation of silica. Differentiate between Conversion and Inversion reactions.	**07**
		OR	
	(b)	What are the various polymorphs of silica? What is Flint? Explain the formation of silica network.	**02+02+03**
Q.3	**(a)**	What are aluminosilicates? Describe the structure and properties of various aluminosilicates in detail.	**02+05**
	(b)	Describe the structure, properties and application of steatite bodies.	**07**
		OR	
Q.3	**(a)**	What is Plaster of Paris? Give its setting methodology.	**07**
	(b)	Describe the Bayer's Method of synthesis of Alumina in detail.	**07**
Q.4	**(a)**	Explain the formation of kaolinite structure. Why does montmorrilonite group of materials feel soapy?	**04+03**
	(b)	Describe the formation and structure of Muscovite mica and Biotite mica.	**07**
		OR	
Q.4	**(a)**	What is natural magnesite? Why does it have low hydration resistance? How can the hydration resistance of magnesite be improved?	**01+02+04**
	(b)	What is Sea Water Magnesia? How is it synthesized?	**07**
Q.5	**(a)**	Define a flux material. Describe the framework network of feldspar.	**07**
	(b)	Write short notes on Wollastonite, Lepidolite, Nephelene Syenite.	**07**
		OR	
Q.5	**(a)**	Write short notes on Silica gel and Vitreous Silica.	**07**
	(b)	Discuss the difference among alpha Alumina, beta Alumina and gamma alumina.	**07**

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