Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V(New) • EXAMINATION - WINTER 2016

Subject Code:2153615 Date:30/11/2016

Subject Name:Processing of Glass & Ceramics(Department Elective- IV)

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.

Q.1		Short Questions	14
Z.,	1	Write the formula of zircon	
	2	Write the chemical composition of ledeburite	
	3	Write the formula of trydimite	
	4	What is cryptocrystalline silica?	
	5	What is silica gel?	
	6	Write the formula of Martensite	
	7	Give an example of eutectoid reaction.	
	8	Give the difference peritectic and peritectoid reaction.	
	9	Define annealing of glass	
	10	Define heterogeneous nucleation.	
	11	Name a congruently developed component.	
	12	Why andalucite is favoured over other aluminosilicates?	
	13	What is the shortcoming of kyanite?	
	14	Where silimanite is found more in nature?	
Q.2	(a)	What is meant by refractoriness under load of a material?	03
Q.2	(a)	Evnlain	
	(b)	Discuss the polymorphic transformation of Zirconia.	04
-	(c)	Explain glass formation with Specific volume vs.	07
	(6)	Temperature plot	
		OR	
	(0)	Explain silicate and Kinetic theory of glass formation	07
0.1	(c)	Define network former, intermediate and modifier.	03
Q.3	(a)	What is Vitreous network theory as per Zachariason.	04
	(b)	Explain the glass refining with some examples.	07
	(c)	OR	
0.0		Explain Growth phenomena	03
Q.3	(a)	Explain Growth phenomena Explain difference between nucleation and growth.	04
	(b)	Explain the model of crystal growth with mathematical	07
	(c)		
		derivation	03
Q.4		Define sol and gel.	04
	(b)	Explain co precipitation process. Explain the role of clay, quartz, feldspar in earthenward	
	(c)	Explain the role of clay, quartz, reluspar in carmenward	
		body making.	
		OR	03
Q.4	(a)	What is jollying?	04
	(b)	Differ between hot and cold isostatic pressing.	07
	(c)	Describe the parameters for isostatic pressing.	07

0 5 (a)		Define chrome structure.	03
Q.5	(a)	Describe difference between normal and inverse spinnel.	04
	(b)	Describe difference between normal and inverse spinor	07
	(c)	Describe the transformation toughening of zirconia	07
		bodies.	
		OR	
Q.5	(a)	What are raw materials normally used in whiteware body making?	03
		Explain the parameters for raw material selection.	04
	(b)	Explain the parameters for raw material selection	07
100	(c)	Explain the role of silica, soda ash and alumina in soda	07
	-	lime silica glass.	
