

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI(NEW) – EXAMINATION – SUMMER 2019****Subject Code:2163607****Date:21/05/2019****Subject Name: Ceramic Coatings****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.

		MARKS
Q.1	(a) Define abnormal grain growth.	03
	(b) Explain how plastic deformation take place in ceramic materials..	04
	(c) Define a whiteware body. Describe the role of feldspar in whitewares bodies.	07
Q.2	(a) Define nucleation and its types.	03
	(b) Explain the model of homogeneous nucleation with mathematical derivation.	04
	(c) Explain nucleation phenomena. Explain difference between nucleation and growth.	07
	OR	
	(c) Write down what is jollying, jiggering and extrusion.	07
Q.3	(a) Describe synthesis of Sea water magnesia	03
	(b) Explain the phase diagram of $\text{Al}_2\text{O}_3\text{-SiO}_2$	04
	(c) Define flint. Explain different polymorphs of Barium Titanate	07
	OR	
Q.3	(a) Define normal and inverse spinel.	03
	(b) Describe the occurrences of chrome ore.	04
	(c) Describe the structure of chrome ore in detail	07
Q.4	(a) What is natural magnesia?	03
	(b) Define different types of Magnesia.	04
	(c) Describe occurrences of magnesia	07
	OR	
Q.4	(a) Define flux materials.	03
	(b) Write down the role of flux in composition.	04
	(c) Write down the role of wollastonite, nepheline syenite and feldspar as flux.	07
Q.5	(a) Define R.U.L.	03
	(b) Describe the difference between R.U.L. and Creep.	04
	(c) Explain the role of silica, soda ash and alumina in soda lime silica glass	07
	OR	
Q.5	(a) What is meant by creep?	03
	(b) Explain enthalpy vs. temperature diagram of a glass forming melt.	04
	(c) What are raw materials normally used in whiteware body making? Explain the parameters for raw material selection	07
