Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2130507 **Date: 09/06/2017**

Subject Name: Material Science and Technology

Time: 10:30 AM to 01:30 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		**Short Questions**	**14**
	1	Full form of BCC Structure.	
	2	Commercial glasses consist of ……	
	3	Steel can be hardened quickly by ……. Process.	
	4	Give example of catalysis.	
	5	Give few examples of Amorphous Materials.	
	6	Give few examples of Crastalline Materials.	
	7	Write a composition of Portland cement.	
	8	Give few examples of Ceramic Materials.	
	9	Give few examples of alloys.	
	10	Crystal structure shows an arrangement of ……	
	11	Write composition of Stainless steel.	
	12	What is the range of particles in nano materials.	
	13	Write a composition of Carbide.	
	14	Clay is a ceramic material. Yes or No.	
Q.2	**(a)**	What is Plasticity of clays?	**03**
	(b)	Discuss setting and hardening of Portland cement.	**04**
	(c)	Write a short note on Nanomaterials with its applications.	**07**
		OR	
	(c)	Explain Nano catalysts and its applications.	**07**
Q.3	**(a)**	Define Melting Point and Thermal Expansion	**03**
	(b)	Discuss grain boundaries.	**04**
	(c)	Write a short note on manufacturing of glasses.	**07**
		OR	
Q.3	**(a)**	Define Point defects and Impurity defects.	**03**
	(b)	Discuss various defects in solids.	**04**
	(c)	Write short note on dislocations, types and movement of dislocations	**07**
Q.4	**(a)**	Draw Structure Zeolites and Mica.	**03**
	(b)	Discuss Phase rule and phase equilibrium	**04**
	(c)	Write a short note on time – temperature- transformations diagram for alloys.	**07**
		OR	
Q.4	**(a)**	Draw Structure of silica and silicates.	**03**
	(b)	Discuss Cooling curves.	**04**
	(c)	Explain refractory and silica-alumina phase equilibrium diagram.	**07**
Q.5	**(a)**	Define Space lattices and Crystallographic planes	**03**

	(b)	Discuss Amorphous and partly crystalline materials.	**04**
	(c)	Write a short note on Magnesium and its various alloys.	**07**
		OR	
Q.5	**(a)**	Define Metallic radii and Ionic radii,	**03**
	(b)	Discuss Metallic structures, Ionic structures	**04**
	(c)	Write a short note on Stainless steel and types of steels.	**07**

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