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 Write composition of Stainless steel. 11 What is the range of particles in nano materials. 12 Write a composition of Carbide. 13 14 Clay is a ceramic material. Yes or No. What is Plasticity of clays? 03 Q.2 (a) (b) Discuss setting and hardening of Portland cement. 04 Write a short note on Nanomaterials with its applications. (c) 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 Define Point defects and Impurity defects. 03 **Q.3** (a) Discuss various defects in solids. 04 **(b)** Write short note on dislocations, types and movement of (c) 07 dislocations (a) Draw Structure Zeolites and Mica. 03 **Q.4** (b) Discuss Phase rule and phase equilibrium 04 Write a short note on time – temperature- transformations 07 (c) diagram for alloys. OR (a) Draw Structure of silica and silicates. 03 **Q.4** (b) Discuss Cooling curves. 04 (c) Explain refractory and silica-alumina phase equilibrium 07 diagram.

Q.5 (a) Define Space lattices and Crystallographic planes 03

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steels. 07
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