| Seat No.: | | D.: Enrolment No | Enrolment No | |
|--|-------------|--|----------------------|--|
| S | ubio | GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-VI(New)- EXAMINATION – SUMMER 2016 pt Codo: 2163607 | 5/2016 | |
| Subject Code: 2103007 Dates Subject Name: Ceramic Coatings Time: 10:30 AM to 01:00 PM To | | ct Coue: 210300/ Date:1//0. | otal Marks: 70 | |
| | | 10:30 AM to 01:00 PM Total Ma | | |
| Instructions: | | | 1 11111151 70 | |
| | | Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. | | |
| Q.1 | (a) (b) | Define sintering. Discuss about the driving force for sintering. Describe different mechanisms of sintering. | 07 07 | |
| Q.2 | (a) (b) | Define a ferroelectric material. Define direct and inverse piezoelectric effect with examples. Write the equation that correlates piezoelectric 'g' and 'd' constant. | 07 07 | |
| | (b) | Describe the ferroelectric polymorphs of Barium Titanate in detail. | 07 | |
| Q.3 | (a) (b) | Describe Magnetic materials in detail with Examples. Describe photonic materials in detail with Examples. | 07 07 | |
| Q.3 | (a) | Briefly discuss various branches of Material Science and | 07 | |
| | (b) | Engineering. What is Sea Water Magnesia? How is it synthesized? | 07 | |
| Q.4 | (a) | Define a superconductor material with examples of metallic and Ceramic superconductors. Explain Meissner effect | 07 | |
| | (b) | Determine the limiting magnetic field that will permit niobium to serve as a superconductor at liquid helium temperature (i.e. 4 K). H_0 = 1970 oersted and T_c = 9.25K. | 07 | |
| 0.4 | | OR | | |
| Q.4 | (a) | How does BCS theory explain superconductivity in metals? Explain the term extrusion. | 07 | |
| | (b) | What is photosensitive and photochromic glass? | 07 | |
| Q.5 | (a) | Discuss the Bayer's process of Alumina synthesis. | 07 | |
| | (b) | Define a flux material. Describe the framework network of feldspar. OR | 07 | |
| Q.5 | (a) (b) | Write short notes on Wollastonite, Lepidolite , Nephelene Syenite. Write short notes on Silica gel and Vitreous Silica. | 07 07 | |
