

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III (NEW) - EXAMINATION – SUMMER 2018****Subject Code:2130506****Date:18/05/2018****Subject Name:Chemical Engineering Materials****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** (a) Explain Atomic structure with diagram. 03
(b) List out different X-ray diffraction methods and explain any one. 04
(c) Explain Bohr's Model with its drawbacks. 07
- Q.2** (a) Write a note on conductors. 03
(b) Explain primary bonding in solids. 04
(c) Define Refractories & explain its classification. 07
- OR**
- (c) Define Abrasives & explain its classification. 07
- Q.3** (a) Discuss basic process of powder metallurgy. 03
(b) State different types of Oils and their properties 04
(c) Explain coordination number with suitable example. Explain along with crystal defects. 07
- OR**
- Q.3** (a) Define: Ionic conductivity, semiconductors and insulators 03
(b) Explain electrical and magnetic property of engineering materials. 04
(c) Explain applications, merits and demerits of powder metallurgy. 07
- Q.4** (a) Define: Refractories, Abrasives and Cement 03
(b) Give classifications of paints and varnishes. 04
(c) Explain various thermal processes of metals and alloys. 07
- OR**
- Q.4** (a) Write short note on Ceramics. 03
(b) Explain Nano materials and their applications. 04
(c) Explain manufacturing of Cements. 07
- Q.5** (a) What is the purpose of annealing? 03
(b) Write short note on - Dry Corrosion with classification and suitable diagram. 04
(c) What is Hardening? Explain the requirements of hardening. 07
- OR**
- Q.5** (a) Define: Thermosetting plastics, Composites and Epoxy Resins. 03
(b) Mention the properties and applications of PVC. 04
(c) How can the corrosion be prevented? Explain various methods. 07