

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV (New) EXAMINATION – WINTER 2015

Subject Code:2140501**Date:04/01/2016****Subject Name: Physical & Inorganic Chemistry****Time: 2:30pm to 5:00pm****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 (1) Properties of steel (2) Heat of combustion (3) Order of reaction, (4) Exothermic reaction (5) Ionic bond (6) Buffer solution (7) Rate constant. **07**
(b) Discuss Ist law and IIIrd law of thermodynamics in detail. **07**
- Q.2** (a) Explain types of radio active decay and explain any one method to measure radioactive radiation. **07**
(b) Explain extraction and purification of metal with suitable example. **07**
- OR**
- (b) Explain Hess's law of heat of summation in detail with example. **07**
- Q.3** (a) What is phase rule? Who invented this rule? One component system in detail. **07**
(b) Explain eutectic point and two component system in detail. **07**
- OR**
- Q.3** (a) Deduce the rate expression for second order reaction where both the concentration terms are same. **07**
(b) Discuss Covalent, Ionic, Hydrogen and Chemical bond in detail? **07**
- Q.4** (a) What is chromatography? Give its principle and write a note on gas chromatography (GC) instrument and its working. **07**
(b) What is adsorption spectroscopy? Derive Lambert's-Beer's law related equations in detail. **07**
- OR**
- Q.4** (a) What is electro chemistry? Explain cell which is useful to measure conductance and application of conductometry. **07**
(b) Explain any two types of electrode in detail. **07**
- Q.5** (a) Classify propellants in detail .Explain rocket propellants. **07**
(b) Which type of precaution we will take during storage of explosives? **07**
- OR**
- Q.5** (a) What is nuclear chemistry? Explain Geiger-Muller counter in detail. **07**
(b) What is chemical reaction? Distinguish between nuclear fission and fusion reaction with example. **07**
