

GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER IV- • EXAMINATION – SUMMER 2015

Subject Code: 140501**Date: 05/06/2015****Subject Name: Physical & Inorganic Chemistry****Time: 10.30am-01.00pm****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) Degree of freedom (2) Heat of combustion (3)pH, (4) Free energy (5)Ionic bond (6) Transition Metal (7) Dipole moment. **07**
- (b) Discuss Ist law of thermodynamics in detail. **07**
- Q.2** (a) What is industrial application of thermo chemistry? **07**
- (b) What is thermo dynamics? Discussion IInd law of thermodynamics with suitable example. **07**
- OR**
- (b) How electron displacement works? Explain Inductive and Stearic effect in detail. **07**
- Q.3** (a) What is phase rule? Who invented this rule? Explain Two component system in detail. **07**
- (b) Explain eutectic point and One component system in detail. **07**
- OR**
- Q.3** (a) What is metal? Distinguish between cast and wrought iron. **07**
- (b) What is transition metal? Explain heat treatments of steel. **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. **07**
- (b) Explain any two fuel cells 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) Discuss isomerism? What are its applications? **07**
- (b) What is co-ordination bond? Derive valance bond theory in detail, with one example. **07**
