

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem-IV Remedial Examination Nov/ Dec. 2010****Subject code: 140501****Subject: PHYSICAL AND INORGANIC CHEMISTRY****Date: 01 / 12 / 2010****Time: 03.00 pm – 05.30 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is Authentic

- Q.1** (a) What do you understand by Eutectic point? Give detailed about two component systems with one example. **07**
- (b) What is Phase rule? Explain one component system of ice in detail. **07**
- Q.2** (a) Discuss organic reactions. What is inductive effect? **07**
- (b) Explain hyper conjugation effect in detail. **07**
- OR**
- (b) Give some information about electron displacement. **07**
- Q.3** (a) What is thermo chemistry? Explain heat of combustion and heat of solution with application. **07**
- (b) Write a note on: (1) Energy (2) Enthalpy (3) Free energy. **07**
- OR**
- Q.3** (a) Explain and derive Lambert – Beer Law . Give the wavelength range (nm) of U.V., Visible and I.R. region in EMR spectrum. **07**
- (b) Discuss electro chemical cell. Explain pH, pOH and buffer solution in detail. **07**
- Q.4** (a) What is chromatography? Explain Gas Chromatography in brief with schematic diagram. **07**
- (b) Give Instrumental set up of spectrophotometer describing its components with diagram. **07**
- OR**
- Q. 4** (a) Write a preparation of following (1) lead azide (2) Tri nitro toluene (3) RDX or Cyclonite **07**
- (b) Discuss cast iron and wrought iron along with their uses for different engineering purposes. **07**
- Q.5** (a) Note on precautions during storage of explosives. **07**
- (b) Write a note on Lanthanide and Actinide elements along with their uses. **07**
- OR**
- Q.5** (a) What is metal and metallurgy? Write different physical properties of metals which are required to enhance the metals characteristics. **07**
- (b) What are alloys? Why it is required to alloying steel? Write in short about steel and aluminum alloys. **07**
