Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV (OLD) - EXAMINATION – SUMMER 2017

Subject Code: 140501 **Date: 01/06/2017**

Subject Name: Physical And Inorganic Chemistry

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)**	Write Gibb's phase rule and explain phase diagram of any one component system.	**07**
	(b)	What do you understand by 'enthalpy', 'entropy' and 'Free energy'? Mention industrial applications.	**07**
Q.2	**(a)**	Write a note on physical properties of metals.	**07**
	(b)	What are explosives? Write characteristics of good explosives and name different types of explosives.	**07**
		OR	
	(b)	What is chromatography? Explain principle and working of gas chromatography.	**07**
Q.3	**(a)**	Write a note on heat treatment of steel.	**07**
	(b)	What are alloys? Differentiate between ferrous and non ferrous alloys.	**07**
		OR	
Q.3	**(a)**	What are coordination compounds? Explain structural isomerism in coordination compounds	**07**
	(b)	Define resonance, inductive effect and hyper conjugation and explain any one of these in detail.	**07**
Q.4	**(a)**	What do you understand by pH? What is relation between pH and pOH? Determine pH of 10^{-2} N HCl.	**07**
	(b)	Explain different types of rocket propellants.	**07**
		OR	
Q.4	**(a)**	Explain ionic bonding and give characteristics of ionic compounds.	**07**
	(b)	What are buffer solutions? Write a note on different types of buffer solutions.	**07**
Q.5	**(a)**	Define: (i) Phase (ii) Component (iii) degree of freedom with examples.	**07**
	(b)	Explain covalent bonding. Give characteristics of covalent compounds.	**07**
		OR	
Q.5	**(a)**	Define (i) Eutectic system (ii) calorimetry (iii) transition metals (iv) stainless steel	**07**
	(b)	Explain spectroscopy and derive expression for Lambert beer's law.	**07**

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