Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV (NEW) EXAMINATION – WINTER 2018

Subject Code:2140501 Date:12/12/2018

Subject Name:Physical And Inorganic Chemistry

Time: 02:30 PM TO 05:00 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)**	Which bond is found in sodium chloride? Explain giving electronic configuration.	**03**
	(b)	What do you mean by Hydrogen bond? State its types with suitable examples.	**04**
	(c)	Explain Handerson-Hasselbatch equation for buffer solution.	**07**
Q.2	**(a)**	Compare the properties of α, β and γ particles	**03**
	(b)	Explain HPLC with suitable diagram.	**04**
	(c)	Write a note on electrochemical cell with appropriate diagram.	**07**
		OR	
	(c)	What is buffer solution? What are its types? With an example, explain how a buffer operates.	**07**
Q.3	**(a)**	Write about "Zero Order Reaction".	**03**
	(b)	Explain any one type of electrode in detail.	**04**
	(c)	Write a note on covalent bond and co-ordinate covalent bond.	**07**
		OR	
Q.3	**(a)**	Derive derivation of Gibb's phase rule.	**03**
	(b)	What do you understand by Fission and Fusion reaction?	**04**
	(c)	Write a note on Molecular Orbital Theory with one example.	**07**
Q.4	**(a)**	State Nernst equation and give its application.	**03**
	(b)	Define electrode potential and state the significance of EMF series.	**04**
	(c)	What is adsorption spectroscopy? Derive Lambert's-Beer's law related equations in detail.	**07**
		OR	
Q.4	**(a)**	What do you understand by salt bridge?	**03**
	(b)	What do you understand by Hess's law of constant heat summation and its applications?	**04**
	(c)	What is nuclear chemistry? Explain Geiger-Muller counter in detail.	**07**
Q.5	**(a)**	Name the different types of chemical bonds with one example each.	**03**
	(b)	What is radioactive decay? Explain any one method to measure the radioactivity.	**04**
	(c)	State the properties of good propellant. Briefly discuss the classification and applications of propellant.	**07**
		OR	
Q.5	**(a)**	Write the important properties of steel.	**03**
	(b)	Explain any one reference electrode.	**04**
	(c)	What is chromatography? Give its principle and write a note on gas chromatography (GC) instrument and its working.	**07**

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