

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**
