Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

B.Tech. Winter 2018 - 19Examination

Semester: 1 **Date: 08/12/2018**
Subject Code: 203103101 **Times: 02:00pm to 04:30pm**
Subject Name: Chemistry **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions **(15)**

1) If compound has Centre of Symmetry then it is,
   a) Optically Inactive
   b) Optically Active
   c) Both a) & b)
   d) Neither a) nor b)
2) What is the change in free energy when cell reaction comes towards Equilibrium?
   a) Increases
   b) Decreases
   c) Remains Same
   d) None of Above
3) In Co-ordination Chemistry N_3^- ligand known as_____
   a) Azido
   b) Azied
   c) Azine
   d) Azide
4) _____ hybridization gives tetrahedral shape.
   a) SP
   b) SP^2
   c) SP^3
   d) dSP^2
5) Full form of LUMO is
   a) Linear Unoccupied Molecular Orbital
   b) Lowest Unoccupied Molecular Orbital
   c) Lowest Uncovered Molecular Orbital
   d) Linear Uncovered Molecular Orbital
6) The _____ are attached to the central atom by dative bonds known as Co-ordinate bonds
7) Example of Hydrogen Bond is _____.
8) In Galvanic cell _____ energy converted into _____ energy?
9) Magnetic Property of H_2 molecule is _____.(Diamagnetic/Paramagnetic)
10) Electrode potential of standard hydrogen electrode is _____.
11) Write any one property of Ionic bond.
12) What is the role of Salt Bridge in the Electrochemical cell?
13) Give any one use of Co-ordination Compound.
14) Give definition of Diastereomers.
15) In EMF Series Li has electrode potential of -3.05, Where as K has electrode potential of -2.93 Which one is More Reactive?

Q.2 Answer the following questions. (Attempt any three) **(15)**

A. Explain the term Stereoisomerism. And explain in detail Geometrical isomerism.
B. Explain Organometalic Chemistry with its Uses and Properties.
C. Write a note on “Covalent bond”.
D. Write a note on “Electrochemical cell” With all labeling Diagram.

Q.3 A. Define Co-ordination Chemistry. How many Co-ordination compound are possible from $[Fe(NH_3)_6]$and $[CoCl_6]$. And how many of them are Exist Why? **(07)**

B. Draw the Diagram of N_2Molecule. Calculate its bond order and discuss its magnetic property. **(08)**

OR

B. Draw the Diagram of O_2Molecule. Calculate its bond order and discuss its magnetic property. **(08)**

Q.4 A. Derive Nernst equation. The EMF value of the half cell electrode of Zn^{+2}/Zn is 0.793 in 0.1M. Determine the standard electrode potential of cell.(Zn undergoes oxidation reaction) **(07)**

OR

A. Explain and give Rules of Cahn, Gold and Prelog's R and S system of Nomenclature. **(07)**

B. Explain Reactive Intermideates 1)Carbocation 2) Carbanion & 3) Free radical **(08)**