

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Summer 2018 - 19 Examination

Semester:1
Subject Code: 203103101
Subject Name: Chemistry

Date: 16/05/2019
Time: 02:00pm to 4:30pm
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) Which one of the following is paramagnetic?
 - a. N_2
 - b. NO
 - c. CO
 - d. O_3
- 2) The hybridization of orbitals of N atom in NO_3^- , NO_2^+ and NH_4^+ are respectively
 - a. sp^2 , sp^3 , sp
 - b. sp, sp^2 , sp^3
 - c. sp^2 , sp, sp^3
 - d. sp, sp^3 , sp^2
- 3) Li occupies higher position in the electrochemical series of metals as compared to Cu since
 - a. The standard reduction potential of Li^+/Li is lower than that of Cu^{+2}/Cu
 - b. the standard reduction potential of Cu^{2+}/Cu is lower than that of Li^+/Li
 - c. the standard oxidation potential of Li/Li^+ is lower than that of Cu/Cu^{2+}
 - d. Li is smaller in size as compared to Cu
- 4) Cis-trans isomers are:
 - a. diastereomers.
 - b. stereoisomers
 - c. constitutional isomers.
 - d. more than one of these.
- 5) How many chiral stereoisomers can be drawn for $CH_3CHFCHFCH(CH_3)_2$?
 - a. 1
 - b. 2
 - c. 3
 - d. 4
- 6) Of the halide ion, _____ is the most powerful reducing agent.
- 7) The substance used for electrolysis is called _____.
- 8) NaCl is an _____ compound.
- 9) Only ____ & _____ have the stable outer shell of two electrons.
- 10) Covalent compounds have _____ melting point.
- 11) Which gas is liberated at anode in the electrolysis of water.
- 12) Out of NaCl and MgO, which has higher lattice energy & why?
- 13) What is the role of Salt Bridge in the Electrochemical cell?
- 14) What is the total number of isomers with the formula C_3H_6O that are either cyclic or chiral?
- 15) Write Nernst's Equation.

- Q.2 Answer the following questions. (Attempt any three) (15)
- A) Differentiate between Primary cell & secondary cell.
 - B) 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.).
 - C) Write a note on “Electrochemical cell” With all labeling Diagram.
 - D) What is Racemates?
- Q.3 A) Explain Organometalic Chemistry with its Uses and Properties. (07)
- B) Draw the Diagram of N_2 Molecule. Calculate its bond order and discuss its magnetic property. (08)
- OR
- B) Write and Explain Both the Laws of Electrolysis. (08)
- Q.4 A) Explain substitution, elimination, rearrangement reaction with mechanism. (07)
- OR
- A) Give difference between i) enantiomers & Diastereomers ii) Galvanic cells & electrolytic cells. (07)
- B) Draw the Diagram of O_2 Molecule. Calculate its bond order and discuss its magnetic property. (08)