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

PARUL UNIVERSITY

FACULTY OF APPLIED SCIENCE

B.Sc. Supplementary, Winter 2017-18 Examination

Semester: 2 **Date: 03/01/2018**
Subject Code: 11100151 **Time: 10:30 am to 1:00 pm**
Subject Name: Chemistry-II **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. A) Answer the following questions (Each of 04 marks) **(08)**
(a) Define quantum numbers. Explain any 2 types of quantum numbers
(b) Write postulates of VSEPR theory and explain shape for water.

Q.1. B) Answer the following questions (Any two)
(a) Explain polarity of bond and dipole moment **(04)**
(b) Explain Fajan's rule **(04)**
(c) Draw MO diagram for CO and NO molecule. Calculate their bond orders **(04)**

Q.2. A) Answer the following questions.
(a) Give difference between n-type and p-type semiconductors. **(04)**
(b) Define hybridization. Show hybridization in ethene and ethyne molecules **(04)**

Q.2. B) Answer the following questions (Any two)
(a) Fill in the blanks **(03)**
1. sp^3 hybridization gives rise to _____ type of geometry
2. Shape of IF_7 molecule is _____
3. Number of lone pair of electrons in ammonia molecule is _____

(b) Explain inductive effect. **(03)**
(c) Give difference between homolytic and heterolytic bond fission. **(03)**

Q.3. A) Answer the following questions (Each of 04 marks) **(08)**
(a) Explain Born-Haber cycle for NaCl.
(b) Explain any two types of van der Waal's forces of attraction.

Q.3. B) Answer the following questions (Any two)
(a) What are carbocations? Explain their structures and stability. **(04)**
(b) Define diastereomers. What are threo and erythro diastereomers? **(04)**
(c) Explain conformational analysis of ethane molecule **(04)**

Q.4. A) Answer the following questions.
(a) Short note (Each of 02 marks) **(04)**
1. Write Newman projection for n-Butane
2. What are meso compounds?

(b) Give difference between configuration and conformational isomerism **(04)**

Q.4. B) Answer the following questions (Any two)
(a) Explain liquification of gas based on Joule Thomson effect **(03)**
(b) Write postulates for kinetic theory of gases **(03)**
(c) Derive van der Waal's equation of state **(03)**