

PARUL UNIVERSITY
PARUL INSTITUTE OF APPLIED SCIENCES
MID SEMESTER INTERNAL EXAMINATION, APRIL 2017
B. Sc.(Microbiology/Biotechnology/Biochemistry) Semester II

Paper Code:11100152

Date: 10 /04/2017

Maximum Marks: 40

Subject: Chemistry

Title of the paper: Chemistry-II

Time: 12.30 p.m. to 02.00 p.m.

Instructions:

- 1. All questions are compulsory and options are given in first and second question only.**
 - 2. Numbers to the right of question indicate the marks of respective question.**
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Q. 1 Attempt **any one** question of the following. **(08)**

- (i) State postulates for VSEPR theory and Explain VSEPR theory to H_2O & NH_3 molecule
- (ii) Explain conformations of n-butane and draw the diagram showing torsional strain in it.

Q. 2 Attempt **any three** questions of the following. **(12)**

- (i) Draw MO diagram of O_2 and CO molecule. Calculate its bond order.
- (ii) Explain Born Haber cycle showing e.g. of NaCl
- (iii) State and explain Fajan's rule
- (iv) Write short note on f-centres
- (v) Explain ion-dipole and dipole-dipole interaction giving suitable example.

Q. 3 Do as directed. **Attempt all five questions.** **(05)**

- (i) Draw structure for NaCl crystal
- (ii) Define co-ordination number
- (iii) Draw FCC structure
- (iv) Show hybridization in CH_4
- (v) What is Radius Ratio?

Q. 4 Write correct option in your answer sheet for following 15 multiple choice questions. **(15)**

MCQ 1 Number of bonding pair of electrons in ammonia is

- | | |
|-------|-------|
| (A) 1 | (B) 2 |
| (C) 3 | (D) 4 |

MCQ 2 Atoms in a molecule of water adopt what kind of geometry?

- | | |
|-----------------|----------------|
| (A) linear | (B) hexagonal |
| (C) tetrahedral | (D) octahedral |

MCQ 3 Schottky defect arises due to

- | | |
|-------------------------------|------------------------------|
| (A) Absence of cation & anion | (B) Absence of anion |
| (C) Absence of cation | (D) Excess of cation & anion |

(P.T.O.)

- MCQ 4 Non Stoichiometric KCl structure is _____ in color
 (A) white (B) red
 (C) yellow (D) Lilac
- MCQ 5 In n-type semiconductor _____ impurity is added
 (A) trivalent (B) pentavalent
 (C) tetravalent (D) divalent
- MCQ 6 Weakest van der Waal's forces are _____
 (A) Hydrogen bond (B) Ion-dipole
 (C) Dipole-dipole (D) London forces
- MCQ 7 Calculate bond order of molecule having electrons in BMO=10 & ABMO=4
 (A) 1 (B) 2
 (C) 3 (D) 4
- MCQ 8 In ZnS, Zn^{+2} ion occupy _____ site
 (A) Trigonal site (B) Tetrahedral site
 (C) Hexagonal site (D) Octahedral site
- MCQ 9 Arrangement of molecule having radius ratio <0.155 is
 (A) Linear (B) Plane Trigonal
 (C) Tetrahedral (D) Octahedral
- MCQ 10 Displacement of an atom by another atom is called
 (A) Substitution Reaction (B) Elimination Reaction
 (C) Addition Reaction (D) Rearrangement Reaction
- MCQ 11 _____ is not a nucleophile
 (A) Cl^- (B) OH^-
 (C) Br^- (D) H^+
- MCQ 12 _____ is most stable conformation of cyclohexane
 (A) chair (B) Twist boat
 (C) boat (D) Half chair
- MCQ 13 _____ is least stable conformation of n-butane
 (A) Anti (B) Skew eclipsed
 (C) Gauche (D) Totally eclipsed
- MCQ 14 Formal charge on hydroxyl ion is _____
 (A) +1 (B) 0
 (C) -1 (D) +2
- MCQ 15 Formal charge on hydronium ion is _____
 (A) +1 (B) 0
 (C) -1 (D) +2
