

PARUL UNIVERSITY
FACULTY OF APPLIED SCIENCE
B.Sc. Winter, 2018-19 Examination

Semester: 1
Subject Code: 11105101
Subject Name: Chemistry-

Date: 17/12/2018
Time: 10:30 am to 01:00pm
Total Marks: 60

Instructions:

- All questions are compulsory.
- Figures to the right indicate full marks.
- Make suitable assumptions wherever necessary.
- Start new question on new page.

- Q.1. A) Brief note (4x2) (Each of 04 marks) (08)**
 (a) Differentiate between S_N^1 & S_N^2 reaction.
 (b) Explain the synthesis of alkyl halides from alcohols.
- Q.1. B) Answer the following questions (Any two) (04)**
 (a) Short note (2x2) (Each of 02 marks) (04)
 1. Convert: Ethane to Ethylamine
 2. Write electronic configuration of Al & Ar. (04)
 (b) Short note: Preparation of Alkanes (04)
 (c) What is Ionization energy? Explain periodicity along the groups and periods. (04)
- Q.2. A) Answer the following questions. (04)**
 (a) Short note (2x2) (Each of 02 marks) (04)
 1. Define Ionic bond. Give examples.
 2. Explain Hybridization in CH_4 .
 (b) Describe Born-Haber Cycle (04)
- Q.2. B) Answer the following questions (Any two) (03)**
 (a) Multiple choice questions. (Each of 01 marks) (03)
 1. Atomic weight in a period from right to left. (increases/decreases)
 2. $M + \text{Energy} \longrightarrow M^+ + e^-$ represents (ionization energy/electronic affinity)
 3. Bond order in O_2^+ is ... (1.5/2)
 (b) Explain bonding in any homodiatom molecule with any suitable example by MOT. (03)
 (c) What is Lucas reagent? Write down reaction of Isopropyl alcohol with Lucas reagent. (03)
- Q.3. A) Brief note (4x2) (Each of 04 marks) (08)**
 (a) Give Corey House synthesis.
 (b) Convert 1-bromopropane to propene by showing E-1 mechanism.
- Q.3. B) Answer the following questions (Any two) (04)**
 (a) Brief note (2x2) (Each of 02 marks) (04)
 1. State and explain Aufbau's principle.
 2. Explain hybridization in C_2H_2 .
 (b) Give postulates for Valence Bond Theory. (04)
 (c) What do you mean by quantum numbers? Explain its types. (04)
- Q.4. A) Answer the following questions. (04)**
 (a) Fill in the blanks. (2x2) (Each of 02 marks) (04)
 1. Shapes of C_2H_2 & PCl_5 are & Respectively.
 2. carbocation is more stable than and primary carbocation.
 (b) Complete the following rxns: (04)
 i) $CH_3CH_2OH + SOCl_2 \longrightarrow$
 ii) $CH_3CHO \xrightarrow{Zn-Hg/HCl}$
 iii) $CH_3CH_2CH_3 + Br_2 \longrightarrow$
 iv) $R-H + HOSO_3H \longrightarrow$
- Q.4. B) Answer the following questions (Any two) (03)**
 (a) Multiple choice questions. (Each of 01 marks) (03)
 1. Ca has atomic mass ... (20/40)
 2. Hybridization in C_2H_6 is ... (sp^3/sp^2)
 3. Weak bases favor reaction. (substitution/elimination)
 (b) Show free radical mechanism for chlorination of methane. (03)
 (c) Mention the applications of FES. (03)