Progressive Education Society's

Modern College of Arts, Science & Commerce Ganeshkhind, Pune –16, NEP 2020

(Autonomous)

End Semester Examination: April/May 2024

***Total No. of Questions**: 4* ***Total No. of Pages**: 2*

First Year (B.Sc.)

COURSE CODE: CHE12102

COURSE NAME: Concepts of Organic and Inorganic Chemistry

(Semester II)

Program: B.Sc. **Credits: 2**
Program Specific: B.Sc. Chemistry **Time: 2 Hours**
Course Type: Major **Max. Marks: 30**
SET: A

Instructions to the candidate:

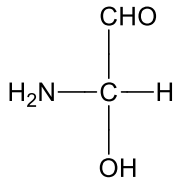
1) *All questions are compulsory.*
2) *Figures to the right indicate full marks.*
3) *Draw a well labeled diagram wherever necessary.*

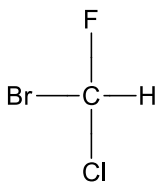
Q1) Answer the following. **[5 X 1 =05]**

1. Define the term 'optical activity'.
2. Define asymmetric carbon atom.
3. What is homocyclic compound?
4. What are alkali metals?
5. What is ionization potential?

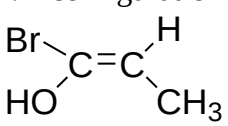
Q2) Answer the following (Attempt any 5/7) **[5 X 2 = 10]**

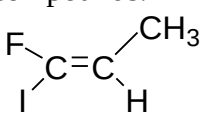
1. Explain Pauli's Exclusion Principle.
2. Draw the structures of cis and trans isomers for 2-butene.
3. Explain the term Dihedral angle.
4. Draw structure of Pyrrole and Furan.
5. Draw the skeleton of the long form of the periodic table and show the position of different blocks in them.
6. Assign R/S configuration of the following compounds.

1. 

2. 

7. Assign E/Z configuration of the following compounds.

1. 

2. 

P.T.O.

Q3) Answer the following (Attempt any 2/4) **[2 X 5 = 10]**

1. Write merits and demerits of the long form of the periodic table.
2. Give trends in oxidation state in IA group.
3. What is geometrical isomerism? Draw the structures of cis and trans isomers of 2,3-dibromo-2-pentene and assign E and Z to both structures.
4. Write the names and symbols of group-IA elements in s-block of periodic table.

Q4) Answer the following (Attempt any 1/2) **[1 X 5 = 05]**

1. Draw all Newman projections of n-butane. Comment on their stability.
2. Draw the structure of 12-crown-4 and 15-crown-5. Explain its use in separation of alkali metals.

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