





- iv) As the molecular weight of alkanes increases, how do the boiling point and melting point change ?
- Boiling point increases, melting point increases
  - Boiling point decreases, melting point decreases
  - Boiling point increases, melting point decreases
  - Boiling point decreases, melting point increases.
- v) Which of the following compounds is nonpolar ?
- CO<sub>2</sub>
  - CH<sub>3</sub>Cl
  - CH<sub>3</sub>OH
  - CHCl<sub>3</sub>.
- vi) Optically active compounds are the compounds that
- rotate the sunlight
  - rotate the polarized light
  - rotate the plane polarized light
  - produce polarized light.
- vii) Tautomers are
- resonance structure
  - enol & keto structures
  - mirror images
  - enantiomers.
- viii) If an ester undergoes alkaline degradation then the pH of the medium will
- increase
  - decrease
  - remain the same
  - none of these.
- ix) Grignard reagent is
- benzyl chloride
  - alkyl magnesium halide
  - alkyl magnesium sulphide
  - sodium sulphocyanide.



- x) Vicinal dihalide means
- two halogen atoms in one carbon
  - two halogen atoms on two adjacent carbons
  - one halogen atom in one carbon
  - two same halogen atoms on two adjacent carbons.
- xi) How many isomers are possible for hexane ?
- 4
  - 5
  - 6
  - 7.
- xii) Which of the following rings has the minimum angle strain ?
- Cyclopentane
  - Cyclohexane
  - Cyclopropane
  - Cyclobutane.

### GROUP - B

#### ( Short Answer Type Questions )

Answer any *three* of the following.  $3 \times 5 = 15$

- What is octane number ? What is its importance in the chemistry of alkanes ? What is TEL ?
- What do you mean by *cis-trans* geometrical isomerism ?
- In case of methyl cyclohexane, methyl group if present at equatorial position will be more stable than axially placed methyl group. Why ?
- An organic compound (A)  $C_3H_8O$ , on dehydration produces (B). (B) on ozonolysis yields one molecule acetaldehyde and one molecule of formaldehyde and (A) responds to Iodoform test. Identify (A) and (B) with proper justifications.
- Differentiate between (a) alcohol and ethers, (b) aldehyde and ketone.



**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. a) The boiling points of alcohols are more than their corresponding alkanes. Why ?  
b) Explain the acidity of primary, secondary and tertiary alcohols.  
c) Explain the basicity of primary, secondary and tertiary amines.  
d) How can you separate a pure optically active isomer from its racemic mixture ?  $3 + 4 + 4 + 4$
8. Prepare any *five* of the following :  $5 \times 3$   
i) Propanoic acid from acetic acid  
ii) 1, 4 dioxane from ethylene  
iii) Cyclobutane from *n*-butane  
iv) Acetone from acetylene  
v) Diethyl ether from ethyl chloride  
vi) Isopropyl alcohol from propylene.
9. Explain Saytzeft rule with example. What do you mean by cracking ? What is the importance of cracking in pharmacy ? Describe  $SN^1$  and  $SN^2$  reactions.  $5 + 5 + 5$
10. Describe LCAO method of molecular orbitals in brief. Define degenerate, antibonding, nonbonding and bonding orbitals. Differentiate between molecular orbital theory and hybridisation theory. Define bond order.  $5 + 4 + 4 + 2$
11. a) Write shortly on Huckel's rule of aromaticity.  
b) Write on any two methods of preparation of arenes.  
c) Illustrate with equations, the important chemical properties of benzene and its homologues.  $2 + 4 + 9$

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