Chapter 02

Isomerism

Practice Section-01

Q.1 Structures $CH_3 - CH_2 - CH = CH_2$ and $CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}} = CH_2$ are :—

(1) Chain isomers (2) Position isomers

(3) Both chain & position isomers (4) Not isomers

Q.2 How many minimum carbons required for Chain isomerism and Position isomerism in alkanes?

(1) 4, 5 (2) 3, 5 (3) 4, 6 (4) 4, 4

Q.3 The minimum number of carbon atoms in ketone to show position isomerism: –

(1) 3 (2) 4 (3) 5 (4) 6

Q.4 Number of structural isomers of C_6H_{14} is

(1) 3 (2) 4 (3) 5 (4) 6

Q.5 $CH_3 - CH = CH - CH_3$ and $\begin{matrix} CH_2 - CH_2 \\ | \quad\quad | \\ CH_3 - CH_2 \end{matrix}$ are

(1) Ring-chain Isomers (2) Chain Isomers (3) Functional Isomers (4) Position isomers

Q.6 $CH_2 - CH_2 - CH_2 - \overset{\displaystyle O}{\overset{\displaystyle ||}{C}} - OH$ and $CH_3 - CH_2 - \underset{\displaystyle OH}{\overset{\displaystyle |}{CH}} - \overset{\displaystyle O}{\overset{\displaystyle ||}{C}} - H$ are

(1) Position isomers (2) Functional isomers (3) Identical (4) Chain Isomers

Q.7 $CH_3 - S - CH_2 - CH_2$ and $CH_3 - CH_2 - S - CH_3$ are

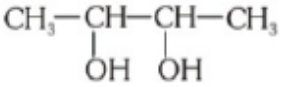
(1) Ring-chain Isomers (2) Chain Isomers (3) Functional Isomers (4) Identical

Q.8 $CH_3 - \overset{\displaystyle O}{\overset{\displaystyle ||}{C}} - O - \overset{\displaystyle O}{\overset{\displaystyle ||}{C}} - C_6H_5$ and $C_6H_5 - \overset{\displaystyle O}{\overset{\displaystyle ||}{C}} - O - \overset{\displaystyle O}{\overset{\displaystyle ||}{C}} - CH_3$ are —

(1) Metamers (2) Chain Isomers (3) Identical (4) Position Isomers

Practice Section-02

Q.1 Calculate total number of optical isomers in following compound

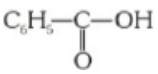
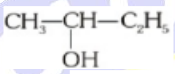
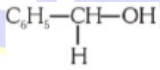
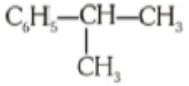


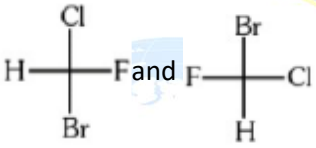
(1) 4 (2) 3 (3) 2 (4) 1

Q.2 The simplest alkanol exhibiting optical activity is

(1) n-butyl alcohol (2) Isobutyl alcohol (3) s-butyl alcohol (4) t-butyl alcohol

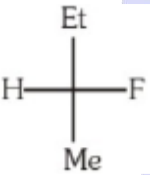
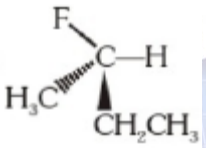
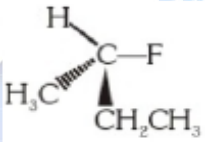
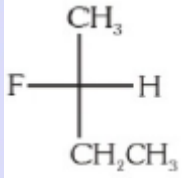
Q.3 Which is optically active molecule

(1)  (2)  (3)  (4) 

Q.4 The following two compounds are  and

(1) Enantiomers (2) Diastereomers (3) Identical (4) Epimers

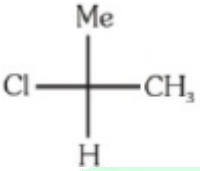
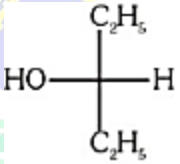
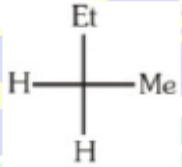
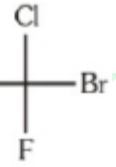
Q.5 Which of the following has 'S' configuration :-

(1)  (2)  (3)  (4) 

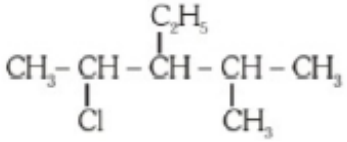
Q.6 Which of the following molecule is chiral :-

(1) Isobutane (2) Neopentane (3) Sec. butylchloride (4) All

Q.7 Which of the following molecule has chiral carbon

(1)  (2)  (3)  (4) 

Q.8 How many chiral carbon atoms are present in following molecule



(1) 1 (2) 2 (3) 3 (4) 4

Q.9 Which of the following shows Geometrical isomerism —

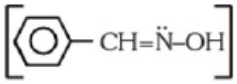
(a) $CH_3-CH_2-CH=N=OH$ (b) $H_2C=N-OH$

(c) $CH_3-\underset{\underset{N-OH}{\|}}{C}-CH_3$ (d) $CH_3-\underset{\underset{N-OH}{\|}}{C}-CH_2CH_3$

(1) a, c (2) c, d (3) a, d (4) b, c

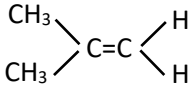
Q.10 Which of the following show Geometrical isomerism —

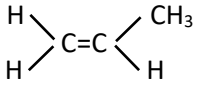
(1) 1, 1 — Diphenyl — 1 — butene
(2) 1, 1 — Diphenyl — 2 — butene
(3) 2,3 — Dimethyl — 2 — butene
(4) 3 — Phenyl — 1 — butene

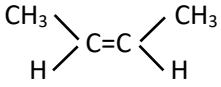
Q.11 The isomerism shown by Benzaldoxime  is :

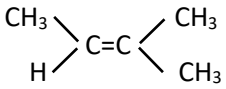
(1) Optical (2) Geometrical (3) Metamerism (4) All of these

Q.12 Which can show 'Geometrical isomerism'

(1) 

(2) 

(3) 

(4) 

Practice Section-03

Q.1 Rotational angle require to get maximum stable conformer from minimum stable conformer in n-butane is :
(1) 360° (2) 180° (3) 120° (4) 240°

Q.2 Most stable conformation of butane is :-
(1) Partial eclipsed (2) Full eclipsed (3) Staggered (4) Gauche

Q.3 Which of the following is not a pair of isomers :
(1) Propyne and Cyclopropene (2) Propyne and Propadiene
(3) Propene and Cyclopropene (4) 1-Propanol and Methoxy ethane

Q.4 What is dihedral angle in staggered form of ethane :-
(1) 30° (2) 45° (3) 75° (4) 60°

Q.5 Isomers which can be interconverted through rotation around a single bond are –
(1) Conformers (2) Diastereomers (3) Enantiomers (4) Positional isomers

Q.6 $CH_3–CH_2–CH_2–CH_3$. There is free rotation about ($C_2–C_3$)σ bond. The same most stable form is repeated after rotation of -
(1) 60º (2) 120º (3) 240º (4) 360º

Q.7 How many conformations does ethane have –
(1) 1 (2) 2 (3) 3 (4) Infinite

Q.8 The eclipsed and staggered conformation of ethane is due to -
(1) Free rotation about C-C single bond (2) Restricted rotation about C - C single bond
(3) Absence of rotation about C - C bond (4) None of the above

ANSWER KEY

PRACTICE SECTION-01

Qus.	1	2	3	4	5	6	7	8
Ans.	1	3	3	3	1	2	4	3

PRACTICE SECTION-02

Qus.	1	2	3	4	5	6	7	8	9	10	11	12
Ans.	2	3	2	1	3	3	4	2	3	2	2	3

PRACTICE SECTION-03

Qus.	1	2	3	4	5	6	7	8
Ans.	2	3	3	4	1	4	4	1