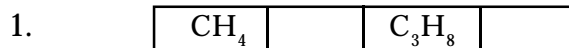


Unit : 14
**Organic Compounds :
Nomenclature and Isomerism**

Concept : Homologous series



Write down the molecular formulae of the missing compounds in the homologous series by selecting them from the choices given

- (a) CH_3 , CH_4
- (b) C_2H_6 , C_4H_{10}
- (c) C_5H_{12} , C_2H_6
- (d) C_4H_{10} , C_5H_{12}

Score (2) Time (2 minute)

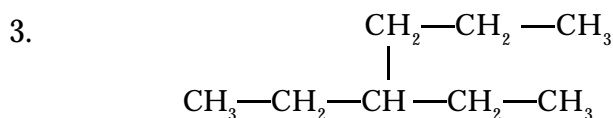
Concept : Nomenclature of alkanes, alkenes and alkynes

2. Examine the table given below and match suitably

Hydrocarbon	Word root	Name
CH_4	eth	methane
$\text{CH}_3\text{-CH}_2\text{-CH}_3$	meth	ethene
$\text{CH}_2\text{=CH}_2$	prop	propane

Score (3) Time (3 minute)

Concept : IUPAC Nomenclature

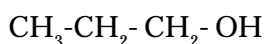


- (a) The number of carbon atoms in the longest carbon chain (1)
- (b) What is the name of the branch? (1)
- (c) Which is the position number of the branch? (1)
- (d) The IUPAC name of this organic compound (1)

Score (4) Time (5 minute)

Concept : Naming of compounds containing functional groups

4. When the teacher asked a student to write the structural formula of propan-2-ol, he wrote like this.



If there is any mistake in it, write the correct structural formula. (2)

Score (2) Time (2 minute)

Concept : : Functional group

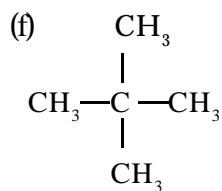
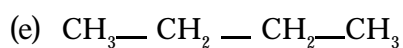
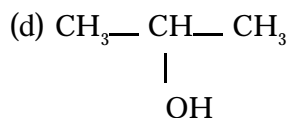
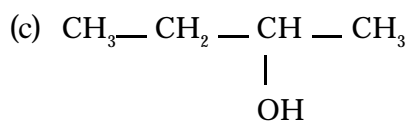
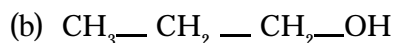
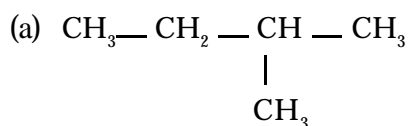
4. Examine the table given below and find out the correct combinations

Functional group	Name of the functional group	Common name
-OH	carboxylic	ketones
$\begin{array}{c} \text{O} \\ \\ \text{-C-OH} \end{array}$	hydroxyl	acids
$\begin{array}{c} \text{O} \\ \\ \text{-C-} \end{array}$	carbonyl	alcohols

Score (3) Time (3 minute)

Concept : Isomerism

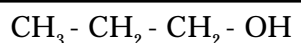
6. Find out the pairs which exhibit chain isomerism and position isomerism from the compounds given below.



Score (4) Time (5 minute)

Concept : Isomerism

7.

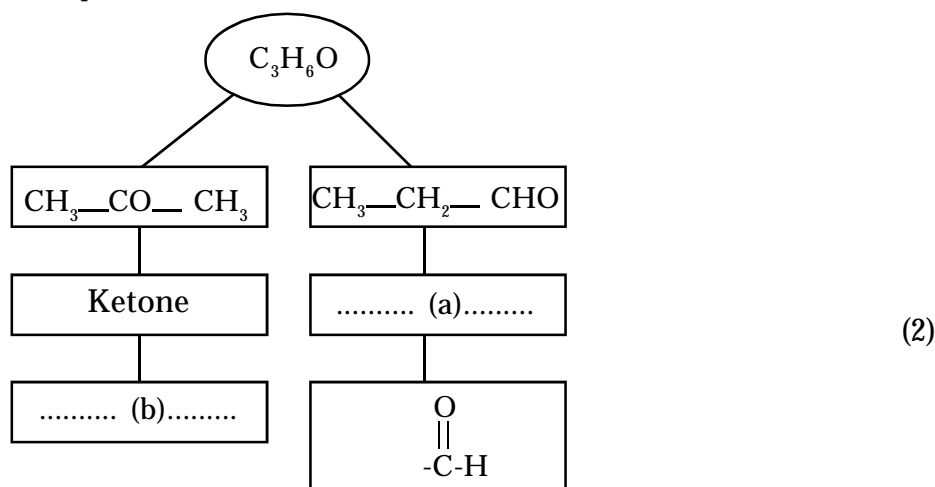


- (a) Write its molecular formula (1)
- (b) Write the structural formula of one of its isomers. (1)

Score (2) Time (2 minute)

Concept : Functional group isomerism

8. (i) Two compounds with the same molecular formula, C_3H_6O are given. Study the difference between the two and fill up the boxes.

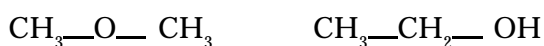


- (ii) What is the name of this phenomenon? (1)

Score (3) Time (3 minute)

Concept : Isomerism

9. The structural formulae of two organic compounds are given



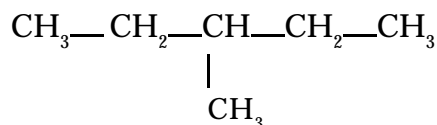
- (a) What is the similarity between these compounds? (1)
(b) What is the difference between them? (1)
(c) This phenomenon is known in which name? (1)

Score (3) Time (3 minute)

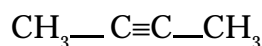
Concept : Isomerism

10. The structural formulae and the names of two organic compounds are given. Correct if there is any mistake in the name

(a) 2-methylpentane



(b) But-3-yne



Score (2) Time (3 minute)

Concept : IUPAC naming of organic compounds

11. Details of an organic compound are given below

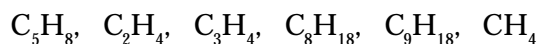
- (i) It is a hydrocarbon
(ii) There are 5 carbon atoms
(iii) It is a saturated hydrocarbon
(iv) There are no branches

- (a) Draw the structure of the compound. (1)
(b) What is its name? (1)
(c) Write one homologue of the compound. (1)

Score (3) Time (3 minute)

Concept : Homologous series

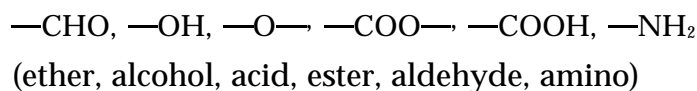
12. Molecular formulae of some hydrocarbons are given. Classify them into different homologous series.



Score (3) Time (3 minute)

Concept : Functional groups

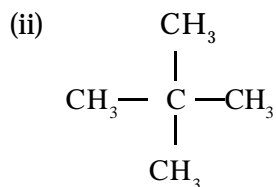
13. Method of representing some functional groups is given. From the names given in brackets, select the common names of the compounds containing these functional groups.



Score (3) Time (3 minute)

Concept : Chain isomerism

14. (i) $\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_3$



- (a) Write the molecular formulae of these two compounds (1)
(b) Write the structure and IUPAC name of another compound having the same molecular formula. (2)
(c) Which type of isomerism is this? (1)

Score (4) Time (5 minute)

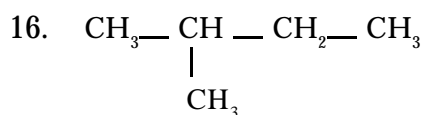
Concept : The structure of compound and its IUPAC name

15. The IUPAC name of a compound is 2,3-dimethylbutane.

- (a) Draw the structure of this compound. (1)
(b) What is its molecular formula? (1)

Score (2) Time (2 minute)

Concept : Chain isomerism



- (a) Write its molecular formula. (1)
(b) Write the structures of two other possible isomers. (2)

Score (3) Time (3 minute)

Concept : The relation among the IUPAC name, structural formula and molecular formula.

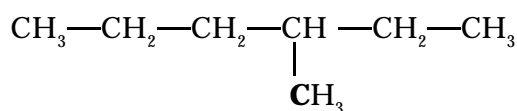
17. Match in the appropriate way

Structural formula	IUPAC name	Molecular formula
$\begin{array}{c} \text{CH}_3 - \text{CH} - \text{CH}_2 - \text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	2,2-dimethylbutane	C_7H_{16}
$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 - \text{C} - \text{CH}_2 - \text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	2-methylhexane	C_6H_{14}
$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 - \text{CH} - \text{CH}_2 - \text{CH}_2 \\ \\ \text{CH}_2 - \text{CH}_3 \end{array}$	2-methylbutane	C_5H_{12}

Score (3) Time (3 minute)

Concept : IUPAC groups

18.

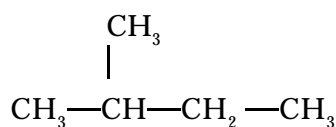


- (1) Some statements related to this compound are given below. Choose the correct statements.
- (a) There are two branches in the compound
(b) It is a hydrocarbon
(c) $-\text{CH}_3$ is a branch
(d) It is included in the alkene family
(e) There are 5 carbon atoms in the longest chain. (2)
- (2) Based on the IUPAC rule number the longest carbon chain. (1)

Score (3) Time (3 minute)

Concept : IUPAC nomenclature

19.



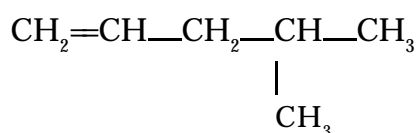
Select the correct name

- (a) 2,3-dimethylbutane
- (b) 3-methylbutane
- (c) 2-methylbutane
- (d) Pentane

Score (1) Time (1 minute)

Concept : Nomenclature of alkenes

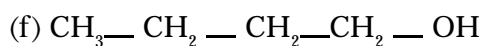
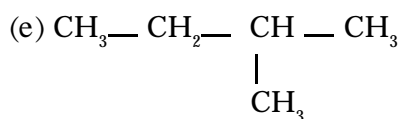
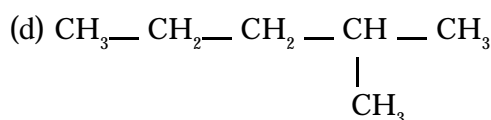
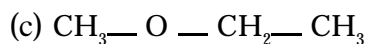
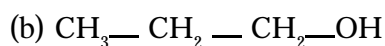
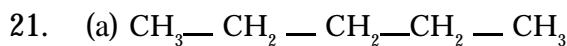
20.



- (a) Write the IUPAC name of this compound. (1)
- (b) Draw the structure of one position isomer of this compound. (1)

Score (2) Time (2 minute)

Concept : Isomers

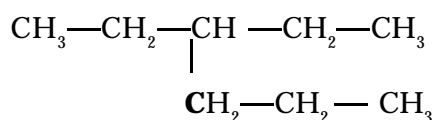


- (1) Find out the pairs of isomers.
- (2) Name the type of isomerism in each pair.

Score (4) Time (4 minute)

Concept : IUPAC nomenclature

22.



- (a) Number the longest carbon chain.

- (b) What is the name of the branch?
(c) Give the IUPAC name of the compound.

Score (3) Time (3 minute)

Concept : Homologous series

23. Details of an organic compound are given below.
- (i) It is a hydrocarbon
 - (ii) There are 7 carbon atoms
 - (iii) It is a saturated hydrocarbon
 - (iv) There is an ethyl group on the third carbon atom.
- (a) Write the structure of the compound.
(b) Give the IUPAC name.
(c) Write one homologue of this compound.

Score (3) Time (3 minute)

Concept : Isomerism

24. For a compound with the molecular formula $C_4H_{10}O$
- (a) Draw the structure of one position isomer. (1)
(b) Write the IUPAC name of this isomer. (1)

Score (2) Time (3 minute)

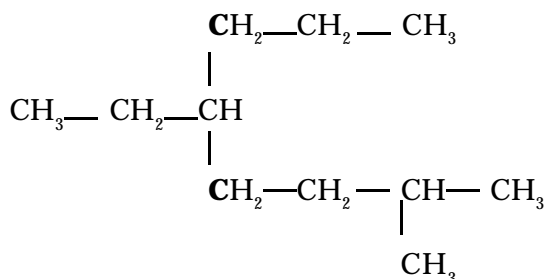
Concept : Isomerism

25. Between the two compounds, $CH_3-O-C_2H_5$ and $CH_3-CH_2-CH_2-OH$
- (a) What is the similarity? (1)
(b) What is the difference? (1)

Score (2) Time (3 minute)

Concept : IUPAC nomenclature

26.

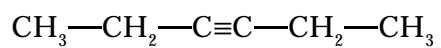


- (a) Write the names of the branches. (1)
(b) Write the correct position numbers of the branches. (1)
(c) Write the IUPAC name of the compound. (2)

Score (4) Time (5 minute)

Concept : IUPAC nomenclature

27.



- (a) Give the molecular formula of the compound. (1)
- (b) Write the IUPAC name of the compound. (1)
- (c) Write the structures two other possible isomers. (2)

Score (4) Time (4 minutes)
