Chemistry · Organic Chemistry

Hydrocarbon Derivatives

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62	3	20
questions	sets	pages

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Multiple choice questions — 48 questions

1 Which of the following includes compounds that belong to one homologous series?

(A) CH_3OH , CH_3CH_2OH , CH_3COOH

(B) CH_3OH , CH_3CH_2OH , $CH_3CH_2CH_2OH$

(C) CH_3OH , CH_3COOH , $CH_3CH_2CH_2OH$

(D) CH_3CH_2OH , CH_3COOH , $CH_3CH_2CH_2OH$

2 The compound $CH_3CH_2CH_2OH$ is similar to the compound $CH_3OCH_2CH_3$ in each of the following, except .....

(A) the number of carbon atoms per mole.

(B) the number of hydrogen atoms per mole.

(C) the functional group.

(D) the molar mass.

3 In a saturated monohydric alcohol, the mass of the alkyl group in one mole of it is 43 g
What is the molar mass of this alcohol?
[H = 1 , O = 16]

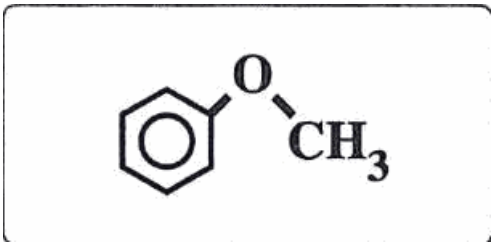
(A) 44 g (B) 46 g (C) 59 g (D) 60 g

4 Which is the simplest of the following ethers?

(A) $CH_3 - O - CH_3$ (B) $C_2H_5 - O - CH_3$

(C) $C_2H_5 - O - C_2H_5$ (D) $C_6H_5 - O - C_2H_5$

5 What is the name of the opposite compound?



(A) vinyl methyl ether.

(B) methylphenol.

(C) methyl phenyl ether.

(D) phenol methoxide.

6 Each of the following is an isomer of diethyl ether, except .....

(A) methyl propyl ether.
(B) 1-butanol.
(C) 2-methyl-2-propanol.
(D) dipropyl ether.

7 What is the number of ether isomers whose molecular formula is $C_4H_{10}O$?

(A) 2 (B) 3 (C) 5 (D) 6

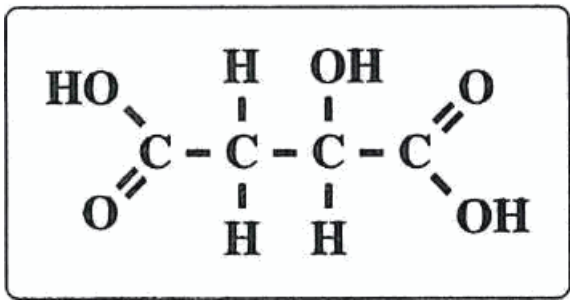
8 The organic compound in which an aryl group is directly attached to a hydroxyl group is classified as one of the .....

(A) aromatic alcohols.
(B) phenols.
(C) carboxylic acids.
(D) aldehydes.

9 Suppose Avogadro's number is given the symbol A
What is the number of hydrogen atoms in a sample of the compound $CH_3COC_2H_5$ of mass 4.5 g?
[C = 12 , H = 1 , O = 16]

(A) 72 A atom (B) A atom (C) A/2 atom (D) A/16 atom

10 The opposite compound:
includes functional groups found in .....



(A) alkenes and alcohols.
(B) alkenes and organic acids.
(C) alcohols and organic acids.
(D) alkenes, organic acids and alcohols.

11 Four organic compounds: ethane, ethanoic acid, ethanol, ethene
Which of the following bonds is found in all of these compounds?

(A) C = C (B) C – H (C) C – O (D) O – H

12 Each of the following includes a formyl group, except .....

(A) $C_5H_{10}O$ (B) $C_6H_{12}O$ (C) $C_5H_{12}O$ (D) CH_2O

13 The following formulas represent ketones:

Formula (1): $(C_2H_3)_2CO$, formula (2): $C_6H_5COC_6H_5$, formula (3): $C_2H_5COC_6H_5$, formula (4): $C_5H_{10}O$

Which of them represents the compound divinyl ketone?

(A) Formula (1) only.
(B) Formulas (1) and (3) only.
(C) Formula (2) only.
(D) Formulas (2) and (4) only.

14 The difference in the chemical properties of acetaldehyde and acetone is due to their difference in .....

(A) molar mass.
(B) physical state.
(C) the percentage of carbon.
(D) the functional group.

15 What is the molecular formula of the simplest branched compound of the alkynes, the aldehydes and the ketones?

(A) alkyne: C_5H_8 , aldehyde: C_4H_8O , ketone: $C_6H_{12}O$
(B) alkyne: C_4H_6 , aldehyde: $C_5H_{10}O$, ketone: $C_5H_{10}O$
(C) alkyne: C_4H_6 , aldehyde: $C_5H_{10}O$, ketone: $C_6H_{12}O$
(D) alkyne: C_5H_8 , aldehyde: C_4H_8O , ketone: $C_5H_{10}O$

16 Which of the following compounds includes a single bond of the type (C – O)?

(A) acetone. (B) acetaldehyde. (C) ethanol. (D) diethyl ether.

17 What is the functional group of the compound whose molecular formula is $C_3H_6O_2$?

(A) carbonyl. (B) formyl. (C) carboxyl. (D) hydroxyl.

18 What is the functional group in the opposite compound?

$CH_3–CO–O–C_2H_5$

(A) carbonyl. (B) ether. (C) ester. (D) formyl.

19 The molecular formula ($C_3H_6O_2$) can belong to a compound of .....

(A) alcohols only.
(B) esters only.
(C) alcohols or ethers.
(D) esters or organic acids.

20 Each of the following is true for the organic compound whose formula is $C_6H_5NH_2$, except that it .....

(A) reacts by substitution.
(B) reacts by addition.
(C) is one of the amines.
(D) is one of the amides.

21 What is the number of hydrogen atoms in one molecule of 3-nonanol?

(A) 9 (B) 19 (C) 20 (D) 21

22 What is the IUPAC name of the opposite compound?

$CH_3–CH(CH_3)–CH_2–CH(OH)–CH_3$

(A) 2-methyl-4-pentanol.
(B) 2-methyl-2-pentanol.
(C) 4-methyl-2-pentanol.
(D) 4-methyl-4-pentanol.

23 What is the IUPAC name of the compound $C(CH_3)_3OH$?

(A) 1-butanol.
(B) 1-methyl-1-propanol.
(C) 2-methyl-1-propanol.
(D) 2-methyl-2-propanol.

24 What is the IUPAC name of this compound: $(CH_3)_2CHCH_2OH$?

(A) isobutyl alcohol.
(B) 2-methyl-1-propanol.
(C) 1-methyl-2-propanol.
(D) 2-butanol.

25 What is the chemical formula of isobutyl alcohol?

(A) $CH_3CH_2CH_2CH_2OH$
(B) $(CH_3)_2CHCH_2OH$
(C) $(CH_3)_3COH$
(D) $CH_3CH_2CHOHCH_3$

26 Which pair of alcohols are isomers of each other?

(A) 1-butanol / 2,2-dimethyl-1-propanol.
(B) 2-butanol / 2-methyl-2-propanol.
(C) 1-pentanol / 2-methyl-2-propanol.
(D) 2-propanol / 2-methyl-2-propanol.

27 The molecule of the compound isopentane includes .....

(A) 3 $-CH_3$ groups
(B) 3 $>CH_2$ groups
(C) 3 $-CH_3$ groups and two $-CH_2-$ groups
(D) 3 $>CH_2$ groups and one $>CH-$ group

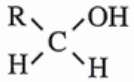
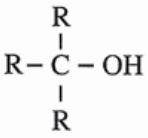
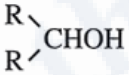
28 The carbon atoms in any organic compound are classified, according to the number of other carbon atoms attached to them, into: primary (attached to one carbon atom), secondary (to two atoms), tertiary (to three atoms), quaternary (to four atoms).

Which of the following describes the carbon atoms in the compound:

$CH_3CH(CH_3)C(CH_3)_2CH_2CH(CH_3)CH_2CH_3$?

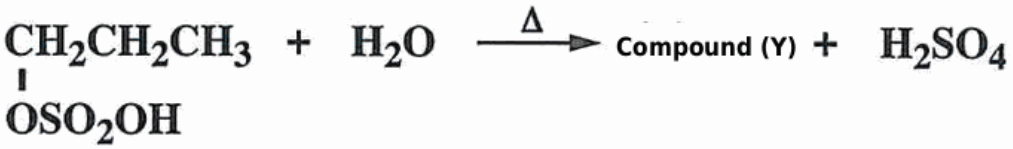
(A) primary 6 , secondary 2 , tertiary 2 , quaternary 1
(B) primary 2 , secondary 6 , tertiary 3 , quaternary 0
(C) primary 2 , secondary 4 , tertiary 3 , quaternary 2
(D) primary 6 , secondary 2 , tertiary 4 , quaternary 1

29 Which of the following groups represents the carbinol group of a secondary alcohol?

(D)	(C)	(B)	(A)
			

30 From the opposite equation:

Which of the following is the name of each of the compounds (X) and (Y)?



Compound (X)

(A) (X): isopropyl hydrogen sulphate, (Y): 1-propanol
(B) (X): propyl hydrogen sulphate, (Y): isopropyl alcohol
(C) (X): propyl hydrogen sulphate, (Y): primary propyl alcohol
(D) (X): isopropyl hydrogen sulphate, (Y): 2-propanol

31 The classification of the following alcohols is correct, except .....

(A) 1-butanol: primary alcohol
(B) 2-butanol: secondary alcohol
(C) 2-methyl-1-propanol: tertiary alcohol
(D) 2-methyl-2-propanol: tertiary alcohol

32 The compound 2-butanol is one of the ..... alcohols.

(A) primary (B) secondary (C) tertiary (D) dihydric

33 Which of the following is a primary alcohol?

(A) 2-butanol.
(B) 2-methyl-1-butanol.
(C) 2-propanol.
(D) 2-methyl-2-butanol.

34 The compound 3-ethyl-3-hexanol is one of the .....

(A) primary alcohols.
(B) secondary alcohols.
(C) tertiary alcohols.
(D) trihydric alcohols.

35 Each of the following describes the structural formula $C(CH_3)_3CH(CH_3)OH$, except .....

(A) it contains a secondary carbon atom.
(B) it contains a quaternary carbon atom.
(C) it is named 3,3-dimethyl-2-butanol.
(D) it is named 2,2-dimethyl-1-butanol.

36 Which of the following is true about the compound normal decanol?

(A) It contains 10 carbon atoms and 21 hydrogen atoms.
(B) It contains 9 carbon atoms and 1 primary carbinol atom.
(C) It contains 22 hydrogen atoms and 2 oxygen atoms.
(D) It contains a total of 33 carbon and hydrogen atoms.

37 What is the number of atoms in one molecule of the monohydric alcohol that has no isomers?

(A) 5 (B) 6 (C) 9 (D) 12

38 What is the number of alcohol isomers whose molecular formula is $C_4H_{10}O$?

(A) 2 (B) 3 (C) 4 (D) 5

39 What is the number of the other alcohol isomers of normal butanol?

(A) 1 (B) 2 (C) 3 (D) 5

40 What is the number of secondary alcohol isomers that include one branched carbon atom and have the molecular formula $C_5H_{12}O$?

(A) 1 (B) 2 (C) 3 (D) 4

41 What is the number of tertiary alcohol isomers whose molecular formula is $C_6H_{14}O$?

(A) 1 (B) 2 (C) 3 (D) 4

42 What is the number of primary alcohol isomers whose molecular formula is $C_5H_{11}OH$?

(A) 4 (B) 5 (C) 6 (D) 8

43 A saturated aliphatic ether has 8 hydrogen atoms in its molecule. Which of the following is an isomer of it?

(A) an aldehyde.
(B) a secondary alcohol.
(C) a ketone.
(D) a tertiary alcohol.

44 The molar mass of a saturated aliphatic monohydric alcohol contains 44 g of carbon and hydrogen.
What is the number of isomers of its molecular formula?
[C = 12 , H = 1 , O = 16]

(A) 3 (B) 4 (C) 5 (D) 6

45 Which of the following gives the number of primary and secondary carbinol groups in glycerol?

(A) primary: 1 , secondary: 2
(B) primary: 2 , secondary: 1
(C) primary: 3 , secondary: –
(D) primary: – , secondary: 3

46 Each of the following pairs of compounds contains two primary carbinol groups, except .....

(A) glycerol and ethylene glycol.
(B) glycerol and sorbitol.
(C) ethylene glycol and sorbitol.
(D) isobutyl alcohol and tertiary butyl alcohol.

47 The compound (C_2H_4) reacts with hydrogen peroxide and a compound (A) is formed.
Each of the following is true for compound (A), except .....

(A) it contains two hydroxyl groups.

(B) it dissolves in water.

(C) it prevents water crystals from gathering in a hexagonal shape.

(D) it is named 1,1-dihydroxyethane.

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48 An aliphatic compound whose molecular formula is $C_6H_{14}O_6$ contains each of the following, except .....

(A) primary carbinol: 2

(B) hydroxyl: 6

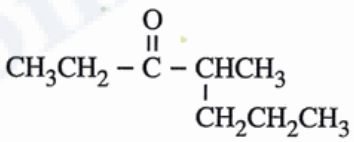
(C) secondary carbinol: 4

(D) tertiary carbinol: 2

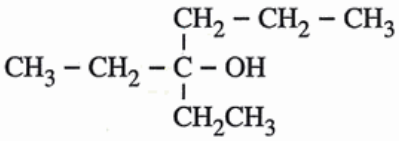
Essay questions — 9 questions

1 Write the names of each of the following two compounds according to the IUPAC system:

(2)



(1)



2 Draw the structural formula of each of the following two compounds:

(1) isopentyl alcohol.

(2) 2-chloro-2-propanol.

3 Draw the structural formula of each of the following two compounds:

(1) 5-ethyl-3-methyl-3-heptanol.

(2) 1,1-dichloro-2-butanol.

4 Draw the structural formula of each of the following two compounds:

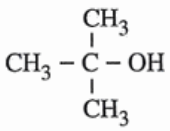
(1) a primary alcohol whose continuous chain includes 5 carbon atoms.

(2) a dihydric alcohol whose molar mass is 62 g/mol

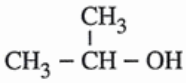
[C = 12 , H = 1 , O = 16]

5 Classify the following two alcohols according to the attachment of the carbinol group, and write the IUPAC name of each:

(2)



(1)



6 A compound was wrongly named 1,1-dimethyl-1-pentanol:

(1) What is the reason this name is wrong?

(2) What is the correct IUPAC name of this compound?

7 Draw the structural formula of the compound 2-methyl-1-propanol, and classify it according to the type of carbinol group.

8 The molecular formula $C_4H_{10}O$ represents a secondary alcohol and a symmetrical ether.

Draw the structural formula of each of:

(1) the secondary alcohol.

(2) the symmetrical ether.

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9 The molecular formula $C_4H_{10}O$ represents a tertiary alcohol and an unsymmetrical ether.

Draw the structural formula of each of:

(1) the tertiary alcohol.

(2) the unsymmetrical ether.

Past exam questions — 5 questions

1 The following are the general formulas of halogen derivatives of some hydrocarbons and the uses of one of their isomers. (Sample exam 2026)

Each of the following is true for the type of halogen derivative and the use of one of its isomers, except .....

(A) $C_nH_nCl_{2n+1}$: saturated, was used as an anaesthetic

(B) $C_nH_{n+1}Cl_{n+1}$: saturated, used in dry cleaning

(C) $C_nH_{n+1}Cl_{n-1}$: unsaturated, used in making carpets

(D) $C_nH_{n-1}Cl$: unsaturated, used in preparing phenol

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2 The molecular formula C_4H_8O represents ..... (1st session 2022)

(A) butanoic acid or butanal.

(B) 2-methylpropanal or butanone.

(C) butanol or butanone.

(D) butanoic acid or 2-methylpropanal.

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3 The molecular formula C_3H_6O may represent ..... (2nd session 2021)

(A) a primary alcohol or an ether.

(B) a secondary alcohol or a ketone.

(C) an aldehyde or a ketone.

(D) an aldehyde or an ether.

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4 The molecular formula $C_5H_{10}O$ represents ..... (Trial exam / March 2023)

(A) ethyl propyl ether, pentanal.

(B) butanoic acid, 3-pentanol.

(C) pentanoic acid, 3-methylbutanone.

(D) 2-methylbutanal, pentanone.

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5 The common name of the compound $(CH_3)_3CCl$ is ..... (Trial exam / June 2021)

(A) tertiary butyl chloride.

(B) secondary butyl chloride.

(C) 2-chloro-2-methylpropane.

(D) 2-methyl-2-chloropropane.

Answer key and solutions

Multiple choice questions

1 B	2 C	3 D	4 A	5 C	6 D	7 B	8 B	9 C	10 C
11 B	12 C	13 A	14 D	15 D	16 C	17 C	18 C	19 D	20 D
21 C	22 C	23 D	24 B	25 B	26 B	27 A	28 A	29 B	30 C
31 C	32 B	33 B	34 C	35 D	36 B	37 B	38 C	39 C	40 A
41 C	42 A	43 B	44 A	45 B	46 D	47 D	48 D		

1 **Answer (B)**

Methanol, ethanol and propanol are all alcohols ($C_nH_{2n+1}OH$); each one is greater than the one before it by a CH_2 group

2 **Answer (C)**

Both are C_3H_8O (isomers), so they have the same number of atoms and the same molar mass. The first is an alcohol (OH) and the second is an ether $(-O-)$, so they differ in the functional group.

3 **Answer (D)**

The alkyl group C_nH_{2n+1} = 43 , 14n + 1 = 43 , n = 3

The alcohol C_3H_7OH: 43 + 16 + 1 = 60 g

4 **Answer (A)**

The simplest ether is dimethyl ether CH_3-O-CH_3

5 **Answer (C)**

The compound $C_6H_5-O-CH_3$: a methyl group and a phenyl group joined to an oxygen atom. So it is methyl phenyl ether.

6 **Answer (D)**

Diethyl ether is $C_4H_{10}O$

Dipropyl ether is $C_6H_{14}O$, so it is not an isomer of it.

7 **Answer (B)**

The ethers $C_4H_{10}O$: diethyl ether, methyl propyl ether, methyl isopropyl ether.

There are 3

8 **Answer (B)**

OH attached directly to the benzene ring (an aryl group) gives phenols.

9 **Answer (C)**

Molar mass of $CH_3COC_2H_5 = (4 \times 12) + 16 + 8 = 72$ g

Number of moles = $4.5 \div 72 = 1/16$ mol

One mole has 8 mol of H atoms, so the sample has $8/16 = 1/2$ mol

Number of atoms = $A/2$ atom

10 **Answer (C)**

The compound has two carboxyl groups (COOH) and a hydroxyl group (OH).

So it includes the groups of organic acids and alcohols.

11 **Answer (B)**

The C – H bond is found in ethane, ethanoic acid, ethanol and ethene.

12 **Answer (C)**

The formyl group (CHO) needs a C=O bond

$C_5H_{12}O$ is saturated ($C_nH_{2n+2}O$), so it is an alcohol or an ether and has no formyl group.

13 **Answer (A)**

The vinyl group is C_2H_3 (CH_2=CH–)

Divinyl ketone: $(C_2H_3)_2CO$, which is formula (1) only.

14 **Answer (D)**

Acetaldehyde (formyl group CHO) and acetone (carbonyl group CO).

Chemical properties depend on the functional group.

15 **Answer (D)**

Simplest branched alkyne: 3-methyl-1-butyne C_5H_8

Simplest branched aldehyde: 2-methylpropanal C_4H_8O

Simplest branched ketone: 3-methyl-2-butanone $C_5H_{10}O$

16 **Answer (C)**

Acetone and acetaldehyde have C=O, not C–O

Diethyl ether has two C–O–C bonds

Ethanol has one C–OH bond.

17 **Answer (C)**

$C_3H_6O_2$ follows $C_nH_{2n}O_2$: propanoic acid C_2H_5COOH, whose group is carboxyl.

18 **Answer (C)**

The compound $CH_3COOC_2H_5$ (ethyl acetate) has the ester functional group –COO–

19 **Answer (D)**

$C_nH_{2n}O_2$ is a general formula for carboxylic acids and esters.

Example: C_2H_5COOH and CH_3COOCH_3

20 **Answer (D)**

$C_6H_5NH_2$ (aniline) has an amine group NH_2, so it is an amine, not an amide.

21 **Answer (C)**

3-nonanol: $C_9H_{19}OH$

Number of hydrogen atoms = 19 + 1 = 20

22 **Answer (C)**

The longest chain has 5 atoms, and we number from the end nearer to OH

OH is on atom 2 and the methyl group on atom 4: 4-methyl-2-pentanol.

23 **Answer (D)**

$C(CH_3)_3OH$: a chain of 3 atoms, with OH and a methyl group on atom 2

2-methyl-2-propanol.

24 **Answer (B)**

$(CH_3)_2CHCH_2OH$: a chain of 3 atoms, OH on atom 1 and a methyl group on atom 2

2-methyl-1-propanol.

25 **Answer (B)**

Isobutyl alcohol is $(CH_3)_2CHCH_2OH$

26 **Answer (B)**

2-butanol and 2-methyl-2-propanol are both $C_4H_{10}O$

27 **Answer (A)**

Isopentane $(CH_3)_2CH–CH_2–CH_3$ has 3 CH_3 groups and only one CH_2 group.

28 **Answer (A)**

Primary carbon atoms: 6 (the CH_3 groups)

Secondary: 2 (the two CH_2 groups)

Tertiary: 2 (the two CH groups)

Quaternary: 1 (the C atom attached to four carbon atoms)

29 **Answer (B)**

In a secondary alcohol, the carbinol carbon atom is bonded to two carbon atoms and one hydrogen atom: R_2CHOH

30 **Answer (C)**

The OSO_2OH group is attached to the end (primary) carbon atom, so compound (X) is propyl hydrogen sulphate.

Its hydrolysis gives 1-propanol (primary propyl alcohol).

31 **Answer (C)**

2-methyl-1-propanol: OH is on the end atom, so it is a primary alcohol, not tertiary.

32 **Answer (B)**

2-butanol: the carbinol atom is attached to two carbon atoms, so it is a secondary alcohol.

33 **Answer (B)**

2-methyl-1-butanol: OH is on atom 1 (an end atom), so it is a primary alcohol.

34 **Answer (C)**

3-ethyl-3-hexanol: the carbinol atom is attached to three carbon atoms, so it is a tertiary alcohol.

35 **Answer (D)**

The compound $(CH_3)_3C–CH(OH)–CH_3$: the longest chain has 4 atoms, OH is on atom 2 and two methyl groups are on atom 3

Its name is 3,3-dimethyl-2-butanol, not 2,2-dimethyl-1-butanol.

36 **Answer (B)**

Normal decanol $CH_3(CH_2)_8CH_2OH$: 9 carbon atoms in addition to one primary carbinol group (CH_2OH).

It has 22 hydrogen atoms and one oxygen atom.

37 **Answer (B)**

The monohydric alcohol that has no isomers is methanol CH_3OH

Number of its atoms = 1 + 4 + 1 = 6

38 **Answer (C)**

The alcohols $C_4H_{10}O$: 1-butanol, 2-butanol, 2-methyl-1-propanol, 2-methyl-2-propanol.

There are 4

39 **Answer (C)**

The other alcohol isomers of normal butanol: 2-butanol, 2-methyl-1-propanol, 2-methyl-2-propanol.

There are 3

40 **Answer (A)**

The secondary alcohols $C_5H_{12}O$: 2-pentanol, 3-pentanol (unbranched), 3-methyl-2-butanol (branched).

There is 1

41 **Answer (C)**

The tertiary alcohols $C_6H_{14}O$: 2-methyl-2-pentanol, 3-methyl-3-pentanol, 2,3-dimethyl-2-butanol.

There are 3

42 **Answer (A)**

The primary alcohols $C_5H_{11}OH$: 1-pentanol, 2-methyl-1-butanol, 3-methyl-1-butanol, 2,2-dimethyl-1-propanol.

There are 4

43 **Answer (B)**

The saturated ether $C_nH_{2n+2}O$ has 8 H atoms, so it is C_3H_8O (methyl ethyl ether).

Its alcohol isomer: 2-propanol (a secondary alcohol) or 1-propanol.

44 **Answer (A)**

The mass of carbon and hydrogen in $C_nH_{2n+1}OH$ = 14n + 2 = 44 , n = 3

The formula C_3H_8O: 1-propanol, 2-propanol, methyl ethyl ether.

The number of isomers is 3

45 **Answer (B)**

Glycerol $HOCH_2–CHOH–CH_2OH$

It has two primary carbinol groups and one secondary carbinol group.

46 **Answer (D)**

Isobutyl alcohol has one primary carbinol group.

And tertiary butyl alcohol has a tertiary carbinol group.

47 **Answer (D)**

$C_2H_4 + H_2O_2 \rightarrow HO–CH_2–CH_2–OH$ (ethylene glycol)

Its name is 1,2-dihydroxyethane, not 1,1

48 **Answer (D)**

$C_6H_{14}O_6$ is sorbitol: $HOCH_2–(CHOH)_4–CH_2OH$

It has 2 primary carbinol, 4 secondary and 6 hydroxyl groups, and no tertiary carbinol.

Essay questions

1 **Model answer**

(1) 3-ethyl-3-hexanol.

(2) 4-methyl-3-heptanone.

2 **Model answer**

(1) $(CH_3)_2CH–CH_2–CH_2–OH$

(2) $CH_3–C(Cl)(OH)–CH_3$

3 **Model answer**

(1) $CH_3–CH_2–CH(C_2H_5)–CH_2–C(CH_3)(OH)–CH_2–CH_3$

(2) $CHCl_2–CH(OH)–CH_2–CH_3$

4 **Model answer**

(1) $CH_3–CH_2–CH_2–CH_2–CH_2–OH$

(2) $C_nH_{2n}(OH)_2$: $12n + 2n + 34 = 62$

$14n = 28$, $n = 2$

Structural formula: $HO–CH_2–CH_2–OH$

5 **Model answer**

(1) A secondary monohydric alcohol: 2-propanol.

(2) A tertiary monohydric alcohol: 2-methyl-2-propanol.

6 **Model answer**

(1) Because the name of the compound was not based on the longest continuous carbon chain.

(2) 2-methyl-2-hexanol.

7 **Model answer**

$(CH_3)_2CH–CH_2–OH$

A primary monohydric alcohol.

8 **Model answer**

(1) $CH_3–CH_2–CH(OH)–CH_3$

(2) $CH_3–CH_2–O–CH_2–CH_3$

9 **Model answer**

(1) $(CH_3)_3C–OH$

(2) $CH_3–CH_2–CH_2–O–CH_3$ (or any other correct answer).

Past exam questions

1	2	3	4	5
C	B	C	D	A

1 **Answer (C)**

When n = 2 the formula $C_nH_{n+1}Cl_{n-1}$ is C_2H_3Cl (vinyl chloride).

It is used in making PVC (water hoses and floor insulators), not carpets.

2 **Answer (B)**

C_4H_8O represents an aldehyde or a ketone.

2-methylpropanal or butanone.

3 **Answer (C)**

The formula $C_nH_{2n}O$ represents aldehydes and ketones.

4 **Answer (D)**

$C_5H_{10}O$ represents an aldehyde or a ketone.

2-methylbutanal, pentanone.

5 **Answer (A)**

$(CH_3)_3CCl$: the carbon atom bonded to chlorine is attached to three alkyl groups.

Common name: tertiary butyl chloride.