



Assessment

**Chemistry: Lesson
20**



Question 1

Organic compounds **MUST** contain the element _____

A. N

B. O

C. C

D. F



Organic

Carbon forms a maximum of _____ covalent bonds

- A. 1 bond.
- B. 2 bonds.
- C. 3 bonds.
- D. 4 bonds.**
- E. 5 bonds.

Question 3

Hydrocarbons are generally insoluble in water, because they are nonpolar.

A. True

B. False

Question 4

Hydrocarbons are _____ and _____ in water.

A. polar and soluble

B. polar and insoluble

C. nonpolar and soluble

D. nonpolar and insoluble

Question 5

Which of the following is **NOT** a hydrocarbon?

A. CH_4

B. CH_3OH

C. CH_3CH_3

D. CCl_4

E. Two of the above

What is the general formula for an alkane?



Question 7

Which of the following is an alkane?

A. CH_4

B. C_3H_8

C. CH_3CH_3

D. C_8H_{18}

E. All of the above

What is the class of hydrocarbon compounds that contains carbon-carbon single bonds?

A. alkane

B. aldehyde

C. alkene

D. haloalkane

Saturated hydrocarbons have _____ bonds.

A. single

B. double

C. triple

D. quadruple

Compounds that have the same molecular formula but differ in the way the atoms are arranged are called _____.

A. isotopes

B. isomers

C. homologs

D. allotropes

The simplest alkane is methane.

A.True

B.False

Question 12

The name of the hydrocarbon with three carbon atoms and having only single bonds between carbon atoms is

A. decane.

B. butane.

C. propane.

D. ethane.

E. methane.

What type of hydrocarbon is C_2H_6 ?

A. An alkane

B. An alkene

C. An alkyne

D. Cyclical

E. Two of the above

What is the name of this compound?

A. ethane

B. propane

C. butane

D. pentane

E. hexane



Question 15

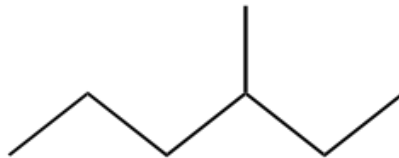
How many carbon atoms are in the following condensed structure?

A. 5

B. 6

C. 7

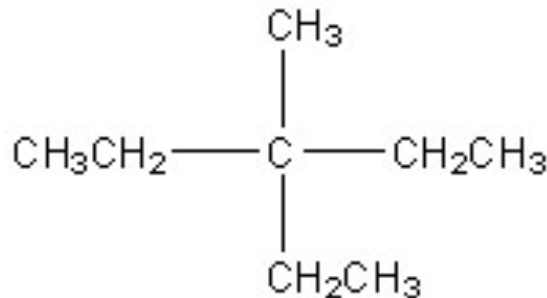
D. 8



Question 16

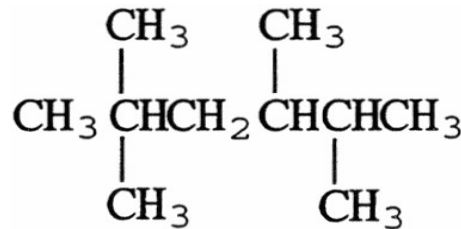
Give the IUPAC name for the branched alkane pictured below.

- A. 3-methylheptane
- B. 3-methyl-3-ethylpentane
- C. 4,4-diethylbutane
- D. 3-ethyl-3-methylpentane**



Question 17

The molecule shown is named as a substituted
because _____.



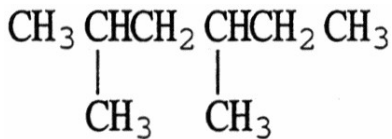
- A. decane; it contains 10 atoms of carbon.
- B. hexane; it contains six atoms of carbon in its longest chain.**
- C. tetramethane; it contains four methyl groups as branches.
- D. hexamethane; it contains six methyl groups altogether.
- E. butane; four carbons are substituted onto the chain.

Question 18

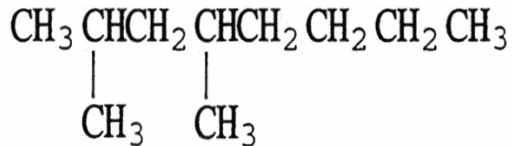
The condensed structure of 2,2,4,4-tetramethylheptane is

_____.

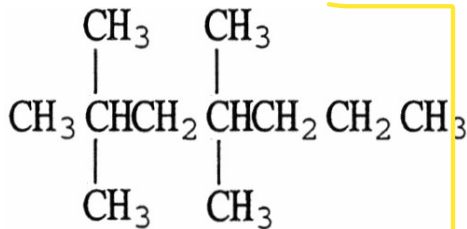
A



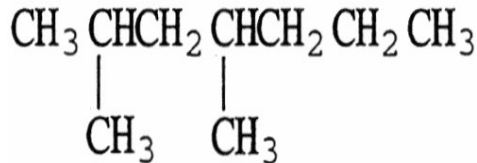
C



B



D



Question 19

Give the IUPAC name for the branched alkane pictured below.

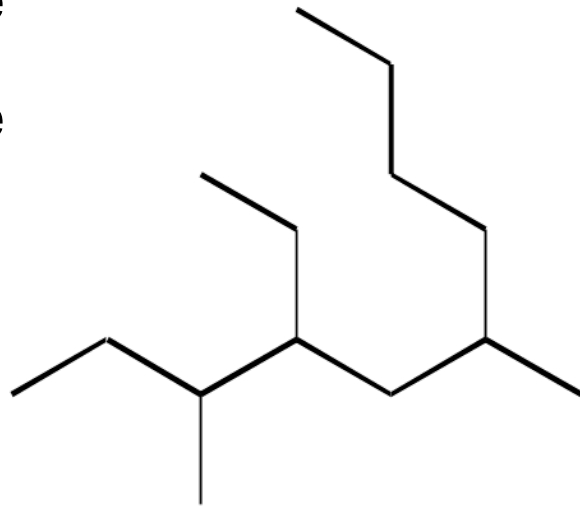
A. 6-butyl-4-ethyl-3-methylheptane

B. 2-butyl-4-ethyl-5-methylheptane

C. 4-ethyl-3,6-dimethyldecane

D. 7-ethyl-5,8-dimethyldecane

E. 4-ethyl-3,6-methyldecane



In the name cyclohexane, the prefix *cyclo* means that

- A. the compound is explosive
- B. the carbon atoms are joined in a ring
- C. the compound is a derivative of benzene
- D. the carbons have a valence of three

What is the general formula for cycloalkane?

A. C_nH_{2n+2}

B. C_nH_{2n+1}

C. C_nH_{2n}

D. C_nH_{2n-1}

E. C_nH_{2n-2}



Assessment

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Question 1

What is the general formula for alkenes?



What is the general formula for alkynes?

A. C_nH_{2n+2}

B. C_nH_{2n+1}

C. C_nH_{2n}

D. C_nH_{2n-1}

E. C_nH_{2n-2}

Question 3

Which of the following is an unsaturated hydrocarbon?

A. C_2H_6O

B. C_3H_6

C. C_4H_{10}

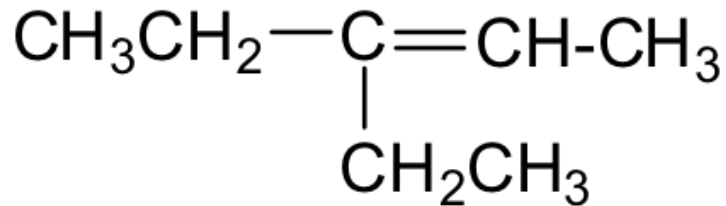
D. $C_{10}H_{22}$

E. All of the above

Question 4

What is the name of the following compound?

- A. 3-ethyl-2-pentene
- B. 3-ethyl-2-pentane
- C. 3-ethyl-3-pentene**
- D. 3-dimethyl-3-pentene
- E. 3-ethylpentene



Question 5

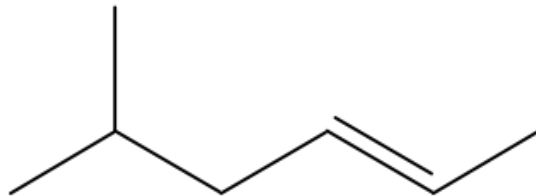
What is the IUPAC name for the following compound?

A. 5-methyl-2-hexene

B. 1,2-dimethylhexene

C. 2,5,-dimethylhexane

D. 2-methyl-5-hexane



Question 6

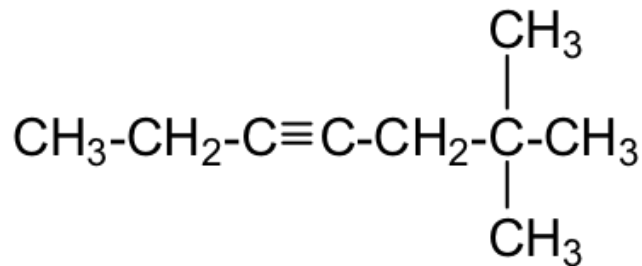
What is the IUPAC name for the following compound?

2,2-dimethyl-5-heptyne

2-methyl-6-octyne

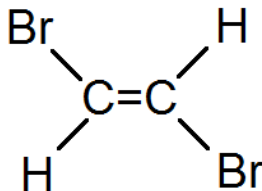
6,6-dimethyl-3-heptyne

6,6-dimethyl-3-hexane



Question 7

Is the following molecule a *cis* or *trans* isomer?



- A. *cis*, because the two Br atoms are on the same side.
- B. *trans*, because the two Br atoms are on the same side.
- C. *cis*, because the two Br atoms are on opposite sides.
- D. *trans*, because the two Br atoms are on opposite sides.

Question 8

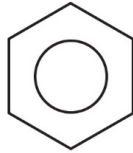
What is the name of the following compound?

A. toluene

B. aniline

C. benzene

D. phenol





Assessment

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The **-COOH** group is called a(n) _____.

A. carboxyl group

B. carbonyl group

C. aldehyde group

D. hydroxyl group

Question 2

What functional groups are present in the following compound?

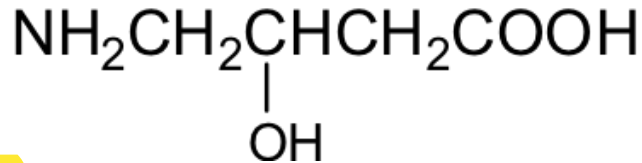
A. Amino, alcohol, ketone

B. Amine, alcohol, carbonyl

C. Amine, alcohol, carboxylic acid

D. Amine, phenol, carboxylic acid

E. Amide, alcohol, carboxylate



Question 3

Which listed type of compound does NOT contain a carbonyl group?

A. Carboxylic acid

B. Ether

C. Ester

D. Ketone

E. Aldehyde

Which of the following types of compounds contains the hydroxyl functional group?

A. Alcohol

B. Ether

C. Ester

D. Ketone

E. Aldehyde

Which functional group below contains a carbonyl (C=O) group?

A. alcohol

B. ether

C. carboxylic acid

D. amine

Which functional group below does **not** contain any oxygen atoms?

A. amine

B. amide

C. ester

D. ether

Question 7

Which set of functional groups contains only ones that contain nitrogen?

- A. amines, amides, and carboxylic acids
- B. alcohols and ethers
- C. amines and amides
- D. alkenes, alkynes, and aromatics

Question 8

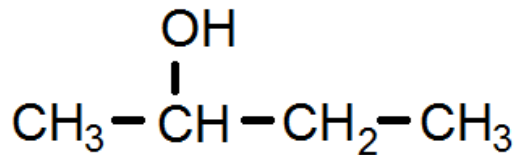
The following alcohol is classified as _____.

A. primary

B. secondary

C. tertiary

D. quaternary



Question 9

The IUPAC name for the following compound is _____.

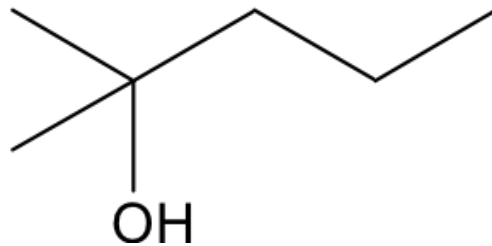


- A. 1-methylpentanol
- B. hexyl alcohol
- C. phenol
- D. 1-hexanol

Question 10

What is the classification of the following alcohol?

- A. primary
- B. secondary
- C. tertiary**
- D. quaternary



What organic family does $\text{CH}_3\text{-CH}_2\text{-O-CH}_2\text{-CH}_3$ belong to?

alcohol

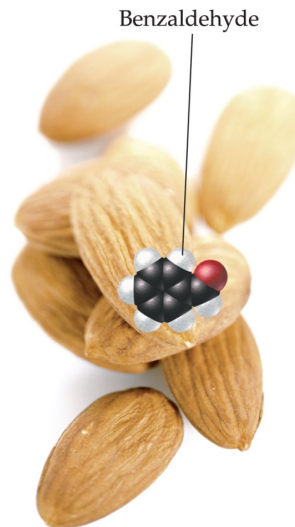
carboxylic acid

aldehyde

ether

Which of the following compounds is an aldehyde?

- A. Propanol
- B. Propanone
- C. Methyl propanoate
- D. Propanal**
- E. Toluene



Question 13

When an aldehyde is oxidized, the product is a(n) _____.

A. alcohol

B. aldehyde

C. ketone

D. carboxylic acid

A ketone must have at least 3 carbons.

A.True

B.False

Esters are formed from the reaction between

- A. alcohol and aldehyde.
- B. ether and carboxylic acid.
- C. ketone and alcohol.
- D. alcohol and carboxylic acid.
- E. None of the above

What two types of chemicals are mixed to form an ester?

A. A carboxylic acid and a base

B. A carboxylic acid and an alcohol

C. A base and an alcohol

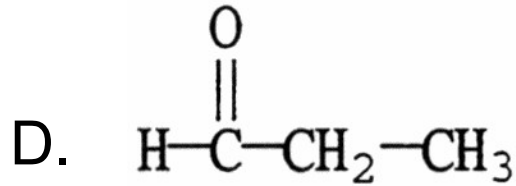
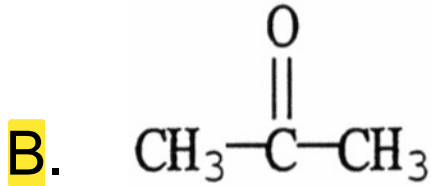
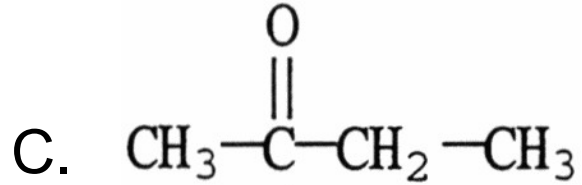
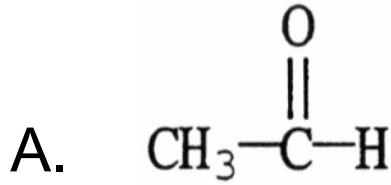
D. Two different carboxylic acids

Question 17

Carboxylic acids react with _____ to form an ester and water.

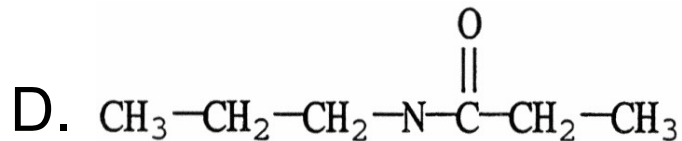
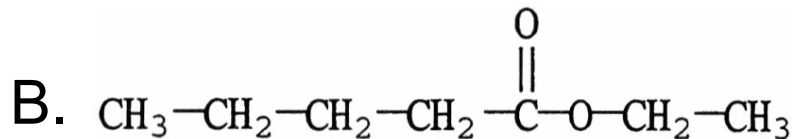
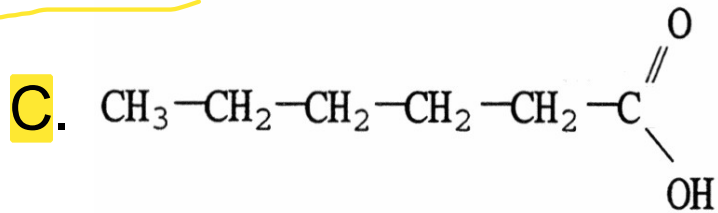
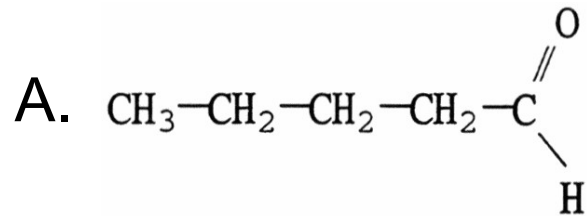
- A. amines
- B. alcohols**
- C. alkanes
- D. alkenes

Which molecule is acetone?



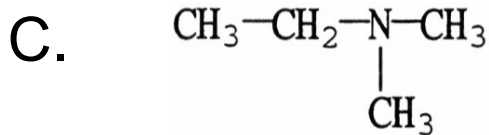
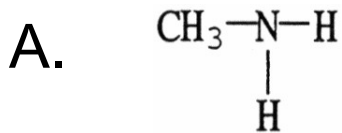
Question 19

Which molecule is a carboxylic acid?

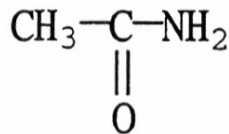


Question 20

Which of the following molecules is an example of amide?



B.



D.

