

Unit
12

Lesson
3

AIM

- Naming Hydrocarbons/Table Q Practice

AGENDA

- U12L3 Lesson video
- Naming Hydrocarbons/Table Q Practice

YOYO

- Watch the lesson video on YouTube (U12L3)

HOMEWORK

- CL#21 - Hydrocarbons - due TONIGHT by 11:59 pm
- Follow calendar

1

Question 1

Which compound is saturated?

- Butane
- Ethene
- Heptene
- Pentyne

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Question 2

What is the chemical name for the compound $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$?

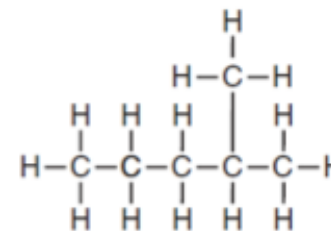
- Butane
- Butene
- Decane
- Decene

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Question 3

What is the IUPAC name of the organic compound that has the formula shown below?

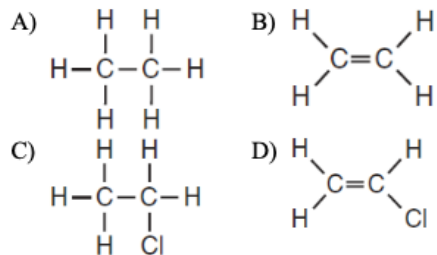
- 1,1-dimethylbutane
- 2-methylpentane
- Hexane
- 4-methylpentane



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Question 4

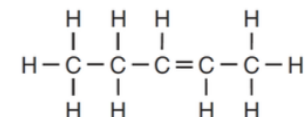
Which formula represents an unsaturated hydrocarbon?



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Question 5

Given the formula representing a compound:



What is the chemical name of this compound?

- 2-pentene
- 2-pentyne
- 3-pentene
- 3-pentyne

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Question 6

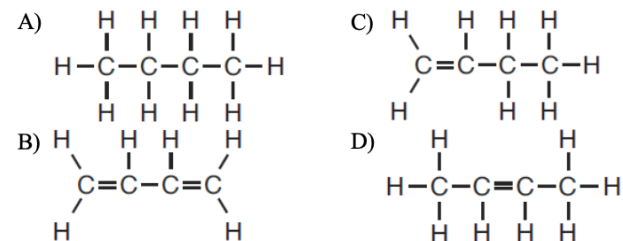
A molecule of an unsaturated hydrocarbon must have

- At least one single carbon-carbon bond
- At least one multiple carbon-carbon bond
- Two or more single carbon-carbon bonds
- Two or more multiple carbon-carbon bonds

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Question 7

Which formula represents 2-butene?



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Question 8

A double carbon-carbon bond is found in a molecule of

- a. Pentane
- b. Pentene
- c. Pentyne
- d. Pentanol

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Question 9

Which formula represents an alkyne?

- a. C_nH_n
- b. $C_{2n}H_n$
- c. C_nH_{2n}
- d. C_nH_{2n+2}

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Question 10

Which general formula represents the homologous series of hydrocarbons that includes the compound 1-heptyne?

- a. C_nH_{2n-6}
- b. C_nH_{2n-2}
- c. C_nH_{2n}
- d. C_nH_{2n+2}

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Question 11

Given the structural formula:



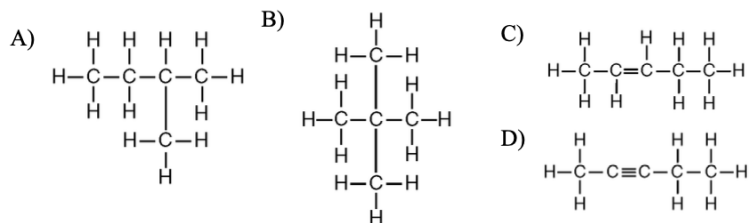
What is the total number of electrons shared in the bond between the two carbon atoms?

- a. 6
- b. 2
- c. 3
- d. 4

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Question 12

Which structure represents 2-pentyne?



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Question 13

Fruit growers in Florida protect oranges when the temperature is near freezing by spraying water on them. It is the freezing of the water that protects the oranges from frost damage. When $\text{H}_2\text{O}(l)$ at 0°C changes to $\text{H}_2\text{O}(s)$ at 0°C , heat energy is released. This energy helps to prevent the temperature inside the orange from dropping below freezing, which could damage the fruit. After harvesting, oranges can be exposed to ethene gas, C_2H_4 , to improve their color.

Explain, in terms of bonding, why the hydrocarbon ethene is classified as unsaturated.

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Question 14

Fruit growers in Florida protect oranges when the temperature is near freezing by spraying water on them. It is the freezing of the water that protects the oranges from frost damage. When $\text{H}_2\text{O}(l)$ at 0°C changes to $\text{H}_2\text{O}(s)$ at 0°C , heat energy is released. This energy helps to prevent the temperature inside the orange from dropping below freezing, which could damage the fruit. After harvesting, oranges can be exposed to ethene gas, C_2H_4 , to improve their color.

Write the empirical formula for ethene.

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Question 15

Natural gas and coal are two fuels burned to produce energy. Natural gas consists of approximately 80% methane, 10% ethane, 4% propane, 2% butane, and other components.

The burning of coal usually produced sulfur dioxide, $\text{SO}_2(g)$ and sulfur trioxide $\text{SO}_3(g)$, which are major air pollutants. Both $\text{SO}_2(g)$ and $\text{SO}_3(g)$ react with water in the air to form acids.

Draw the structural formula for the hydrocarbon that is approximately 2% of natural gas.

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Question 15

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Write the general formula for the homologous series that includes the components of the natural gas listed in this passage.