

Name: 

## Chapter 8 Review Quiz

### Multiple Choice

Identify the choice that best completes the statement or answers the question.

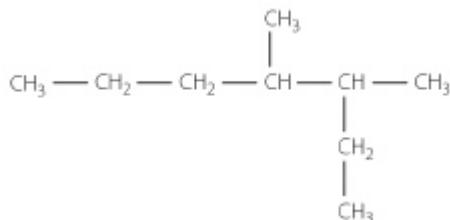
▼ 1. How many structural isomers are there for  $C_4H_{10}$ ?

- a. 1
- b. 2
- c. 3
- d. 4

▼ 2. When naming organic compounds:

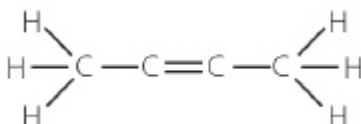
- a. only the longest chain is included.
- b. the parent chain must be in a straight line in the diagram.
- c. the substituent groups are listed in numerical order.
- d. the substituent groups are listed in alphabetical order.

▼ 3. What is the correct name for the following compound?



- a. 3,4-dimethylheptane
- b. 4-methyl-5-ethylhexane
- c. 3-methyl-4-propylpentane
- d. 4,5-dimethylheptane

▼ 4. What is the correct name for the following alkyne?



- a. Butyne
- b. 1-butyne
- c. 2-butyne
- d. 1-methyl-1-propyne

▼ 5. Which compound has the highest boiling point?

- a. ethane
- b. butane
- c. pentane
- d. 2-methylbutane

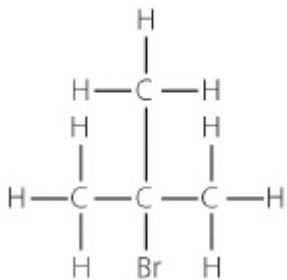
▼ 6. The main intermolecular force of attraction between hydrocarbons is:

- a. covalent bonds.
- b. hydrogen bonds.
- c. dipole–dipole forces.
- d. dispersion forces.

▼ 7. Alkenes are:

- a. saturated, because they do not have the maximum number of hydrogen atoms.
- b. unsaturated, because they do not have the maximum number of hydrogen atoms.
- c. unsaturated, because they have the maximum number of hydrogen atoms.

d. aromatic compounds.

- ▼ 8. Compounds containing one or more benzene rings are called:
- alkanes.
  - alicyclic compounds.
  - aliphatic compounds.
  - aromatic compounds.
- ▼ 9. When a carbon atom has four single bonds, the geometrical arrangement of atoms around it is described as:
- trigonal pyramid.
  - tetrahedral.
  - planar.
  - linear.
- ▼ 10. Which of the following statements is incorrect about the molecular formula of a hydrocarbon?
- It does not give information on the structure of the molecule.
  - It can be true for multiple structures.
  - It is the simplest ratio of atoms present in the molecule.
  - It only includes carbon and hydrogen atoms.
- ▼ 11. What is the correct formula for octane?
- $C_8H_{18}$
  - $C_8H_{16}$
  - $C_8H_{14}$
  - $C_8H_{20}$
- ▼ 12. Which of the following is an isomer of 2,2-dimethylheptane?
- 2,2,3-trimethylpentane
  - 2,2,3,3-tetramethylpentane
  - Octane
  - 2-methyl-3-ethylpentane
- ▼ 13. A haloalkane is best described as:
- an unsaturated compound with a halogen atom substituted for a hydrogen atom.
  - a saturated compound with a halogen atom substituted for a carbon atom.
  - a saturated compound with a halogen atom substituted for a hydrogen atom.
  - an unsaturated compound with a halogen atom substituted for a carbon atom.
- ▼ 14. What is the correct name for the following haloalkane?
- 
- a. 2-bromobutane  
b. 2-bromo-methylpropane  
c. 2-bromo-2,2-dimethylethane  
d. 2-bromo-2-methylpropane
- ▼ 15. Which of the following is correct about structural isomers?
- They have different molecular formulas.
  - They must have any double or triple bonds in the same position.
  - They can be either positional or chain isomers.
  - They must have the same length main chain.
- ▼ 16. An organic compound has molecular formula  $C_6H_{13}Br$ . Which of the following is one possible

structure of this compound?

- a. 2-bromo-pentane
- b. 3-bromo-heptane
- c. 3-bromo-3-methylhexane
- d. 3-bromo-3-methylpentane

▼ 17. Which of the following statements about benzene is incorrect?

- a. It contains a ring of delocalised electrons.
- b. It is very reactive and unstable.
- c. It has formula  $C_6H_6$ .
- d. It is very stable and hard to chemically react.

▼ 18. Pentane has a higher boiling point than ethane because it forms:

- a. a stronger type of secondary force between molecules.
- b. the same number of dispersion forces between molecules, but the individual dispersion forces are stronger.
- c. stronger overall dispersion forces due to an increased number of electrons in the molecule.
- d. stronger overall dispersion forces due to an increased number of hydrogen atoms in the molecule.

▼ 19. Alkanes have various uses related to their molecule size and state. Which of the following is an incorrect statement?

- a. Longer chain molecules are used as lubricants and fuel oils.
- b. Ethene is used as a feedstock for polymers and other industrially produced chemicals.
- c. Hexane is the main component of petrol.
- d. Methane is the main component of natural gas.

▼ 20. The general formulas for alkanes, alkenes and alkynes are:

- a. alkane:  $C_nH_{2n+2}$  alkene:  $C_nH_{2n}$  alkyne:  $C_nH_{n-2}$
- b. alkane:  $C_nH_{2n}$  alkene:  $C_nH_{2n+2}$  alkyne:  $C_nH_{n+4}$
- c. alkane:  $C_nH_{2n-2}$  alkene:  $C_nH_{2n}$  alkyne:  $C_nH_{n+2}$
- d. alkane:  $C_nH_{2n+2}$  alkene:  $C_nH_{2n}$  alkyne:  $C_nH_{n-4}$

