Standardized Test Prep

Answer the following items on a separate piece of paper.

MULTIPLE CHOICE

1. Which of the following hydrocarbons must be an alkane?
- **A.** C_2H_2
- **B.** C_5H_{10}
- **C.** C_7H_{12}
- **D.** $C_{14}H_{30}$

2. A hydrocarbon with the formula C_8H_{18} is called
- **A.** octene.
- **B.** octyne.
- **C.** octane.
- **D.** propane.

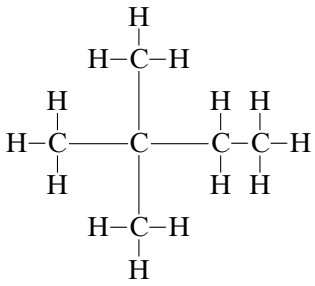
3. During a condensation polymerization reaction,
- **A.** single bonds replace all double bonds that are present in the monomer.
- **B.** water is often produced.
- **C.** alcohol groups are formed.
- **D.** an aldehyde group is changed to a ketone group.

4. In naming an organic compound, we
- **A.** should remember that naming the locations of all functional groups is optional.
- **B.** do not consider the number of carbon atoms in the molecule as a factor.
- **C.** begin by identifying and naming the longest hydrocarbon chain.
- **D.** ignore side chains when we name the molecule.

5. Which of the following compounds cannot have different isomers?
- **A.** C_7H_{16}
- **B.** C_5H_{10}
- **C.** C_3H_8
- **D.** $C_6H_{12}O_6$

6. Compounds that differ only in the order in which the atoms are bonded together are called
- **A.** condensation polymers.
- **B.** addition polymers.
- **C.** structural isomers.
- **D.** geometric isomers.

7. Examine the following structural formula:



The correct name for this compound is
- **A.** 2,2-dimethylbutane.
- **B.** 1,1,1-trimethylpropane.
- **C.** 2-ethyl-2-methylpropane.
- **D.** 3,3-dimethylbutane.

8. Organic functional groups
- **A.** give characteristic properties to compounds that contain them.
- **B.** always contain oxygen.
- **C.** always contain a double or triple bond.
- **D.** are present in every organic compound.

SHORT ANSWER

9. What feature must be present in a compound for it to undergo an addition reaction?

10. Organic compounds of what class contain only two elements?

EXTENDED RESPONSE

11. Describe the difference between substitution and addition reactions. Your answer should mention the degree of saturation of the organic compound.

12. Explain why some alkanes are gases, others are liquids, and still others are solids at room temperature.

Test TIP If you become short on time, quickly scan the unanswered questions to see which might be easiest to answer.