

# Test yourself

## Chapter 14

1 What is the name of the following alkane?



- A 1,2-dimethylbutane
- B 2-propylpropane
- C hexane
- D 2-methylpentane

2 Complete combustion of an alkane produces which of the following products?

- I carbon monoxide
- II carbon dioxide
- III hydrogen
- IV water

- A I only
- B I and II
- C I and III
- D II and IV

- 3** Chlorine can react with propane in sunlight to produce 1-chloropropane. What do we call the mechanism of this reaction?
- A** Nucleophilic addition
  - B** Free-radical substitution
  - C** Electrophilic addition
  - D** Electrophilic substitution
- 4** In the mechanism for the reaction in Question 3, which of the following is a propagation step?
- A**  $\text{C}_3\text{H}_8 + \text{Cl}\cdot \rightarrow \text{C}_3\text{H}_7\cdot + \text{HCl}$
  - B**  $\text{C}_3\text{H}_7\cdot + \text{C}_3\text{H}_7\cdot \rightarrow \text{C}_6\text{H}_{14}$
  - C**  $\text{C}_3\text{H}_7\cdot + \text{Cl}\cdot \rightarrow \text{C}_3\text{H}_7\text{Cl}$
  - D**  $\text{Cl}_2 \rightarrow 2 \text{Cl}\cdot$
- 5** Name the product formed when ethene gas is shaken with bromine water.
- A** Bromoethane
  - B** 2-bromoethane
  - C** 1,1-dibromoethane
  - D** 1,2-dibromoethane

- 6** Experiments on an unknown hydrocarbon determined that its molecules have eight carbon atoms and contain one C=C bond. On oxidation with hot, concentrated acidified potassium manganate(VII) solution, carbon dioxide gas was given off. What does this tell us about the position of the double bond in the unknown hydrocarbon?
- A** The C=C bond is between the first two carbon atoms
  - B** The C=C bond is between the second and third carbon atoms
  - C** The C=C bond is between the third and fourth carbon atoms
  - D** The C=C bond is between the fourth and fifth carbon atoms

- 7** Ethene can be converted to ethanol in an industrial process. In addition to ethene gas, which of the following substances are needed for the industrial production of ethanol?

- I** hydrogen
- II** steam
- III** phosphoric acid
- IV** nickel

- A** I only
- B** II only
- C** II and III
- D** I and IV

- 8** Ethene is bubbled into a cold solution of dilute acidified potassium manganate(VII) solution. What product is formed?
- A** Ethane
  - B** Ethane-1,2-diol
  - C** Ethanol
  - D** Carbon dioxide
- 9** Propene reacts with a concentrated solution of hydrogen bromide to form a mixture of 2-bromopropane and 1-bromopropane. What do we call the mechanism of this reaction?
- A** Nucleophilic addition
  - B** Free radical substitution
  - C** Electrophilic addition
  - D** Electrophilic substitution
- 10** Ethene molecules can react with each other under certain conditions to form poly(ethene). What is the correct term to describe the ethene molecules in this reaction?
- A** Monomers
  - B** Carbocations
  - C** Nucleophiles
  - D** Free radicals