



EXAM PAPERS PRACTICE

Boost your performance and confidence
with these topic-based exam questions

Practice questions created by actual
examiners and assessment experts

Detailed mark scheme

Suitable for all boards

Designed to test your ability and
thoroughly prepare you

2002

XVIII

1583

Time allowed
10 Minutes

Score

/8

Percentage

%

CHEMISTRY

**AQA
AS & A LEVEL**

Topic Questions

3.3 Organic chemistry

1

Which one of the following reactions involves nucleophilic addition?

- A $\text{CH}_3\text{CH}=\text{CH}_2 + \text{HBr} \rightarrow \text{CH}_3\text{CHBrCH}_3$
- B $\text{CH}_3\text{CH}_2\text{CH}_3 + \text{Cl}_2 \rightarrow \text{CH}_3\text{CHClCH}_3 + \text{HCl}$
- C $\text{CH}_3\text{CH}_2\text{CH}_2\text{Br} + \text{NaOH} \rightarrow \text{CH}_3\text{CH}_2\text{CH}_2\text{OH} + \text{NaBr}$
- D $\text{CH}_3\text{CH}_2\text{CHO} + \text{HCN} \rightarrow \text{CH}_3\text{CH}_2\text{CH}(\text{OH})\text{CN}$

(Total 1 mark)

2

Which one of the following is least likely to occur in the reaction between methane and chlorine?

- A $\text{CH}_4 + \text{Cl}\cdot \rightarrow \text{CH}_3\cdot + \text{HCl}$
- B $\text{CH}_3\cdot + \text{HCl} \rightarrow \text{CH}_3\text{Cl} + \text{H}\cdot$
- C $\text{CH}_3\cdot + \text{Cl}_2 \rightarrow \text{CH}_3\text{Cl} + \text{Cl}\cdot$
- D $\text{CH}_3\text{Cl} + \text{Cl}\cdot \rightarrow \text{CH}_2\text{Cl}\cdot + \text{HCl}$

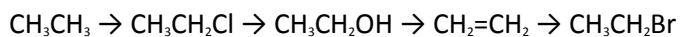
(Total 1 mark)

3 An alkane contains 30 hydrogen atoms per molecule. Its empirical formula is

- A C_6H_{15}
- B C_7H_{15}
- C $C_{14}H_{30}$
- D $C_{15}H_{30}$

(Total 1 mark)

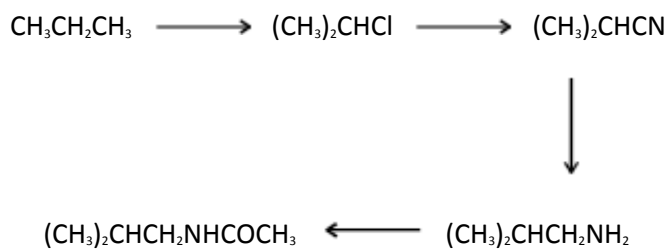
4 Which one of the following mechanisms is **not** involved in the reaction sequence below?



- A electrophilic addition
- B electrophilic substitution
- C nucleophilic substitution
- D free-radical substitution

(Total 1 mark)

5 Which one of the following types of reaction mechanism is **not** involved in the above sequence?



- A free-radical substitution
- B nucleophilic substitution
- C elimination
- D nucleophilic addition-elimination

(Total 1 mark)

6 The percentage by mass of carbon is 83.3% in

- A propane.
- B butane.
- C pentane.
- D hexane.

(Total 1 mark)

7 Which molecule is **not** produced when ethane reacts with bromine in the presence of ultraviolet light?

- | | | |
|---|--------------|--------------------------|
| A | $C_2H_4Br_2$ | <input type="checkbox"/> |
| B | HBr | <input type="checkbox"/> |
| C | H_2 | <input type="checkbox"/> |
| D | C_4H_{10} | <input type="checkbox"/> |

(Total 1 mark)

8 Which of these substances does **not** contribute to the greenhouse effect?

- | | | |
|---|------------------------|--------------------------|
| A | Unburned hydrocarbons. | <input type="checkbox"/> |
| B | Carbon dioxide. | <input type="checkbox"/> |
| C | Water vapour. | <input type="checkbox"/> |
| D | Nitrogen. | <input type="checkbox"/> |

(Total 1 mark)