



**EXAM PAPERS PRACTICE**

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2002

**XVIII**

1583

Time allowed  
**19 Minutes**

**Score**

**/16**

**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  $\text{CH}_3\text{CH}_2\text{CHO} + \text{HCN} \rightarrow \text{CH}_3\text{CH}_2\text{CH}(\text{OH})\text{CN}$

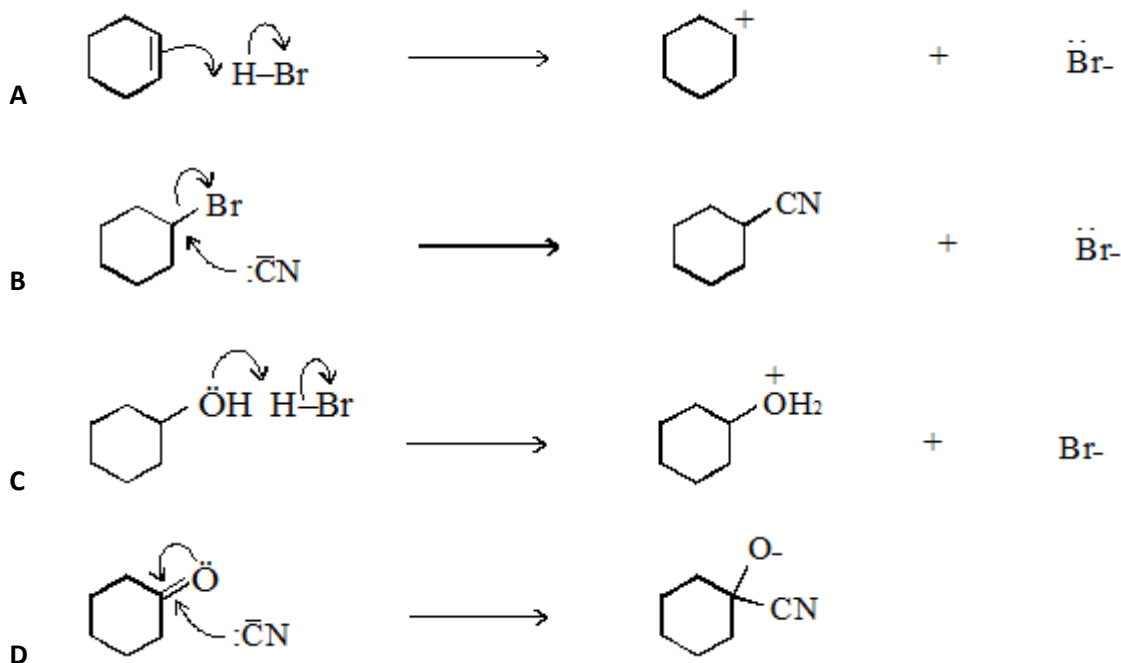
(Total 1 mark)

2. Which one of the following is **not** a suitable method for the preparation of ethanol?

- A oxidation of ethane
- B hydration of ethene
- C reduction of ethanal
- D hydrolysis of bromoethane

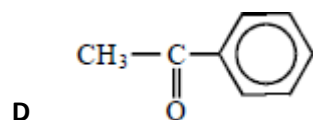
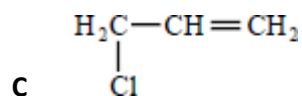
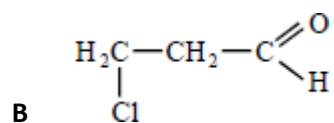
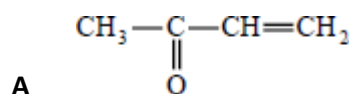
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3. In which one of the following are the curly arrows **not** used correctly?



(Total 1 mark)

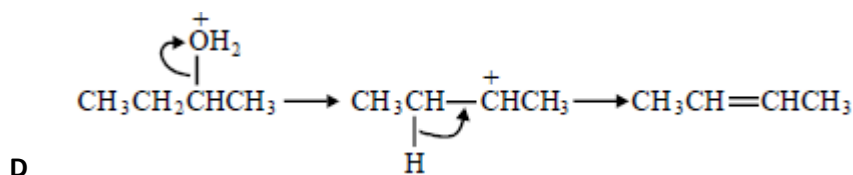
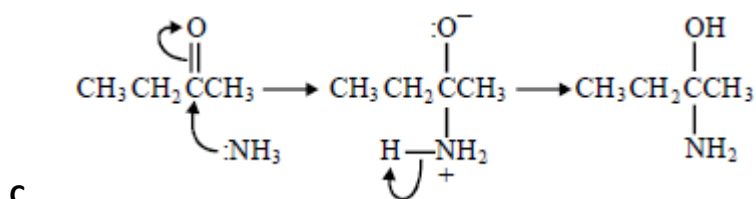
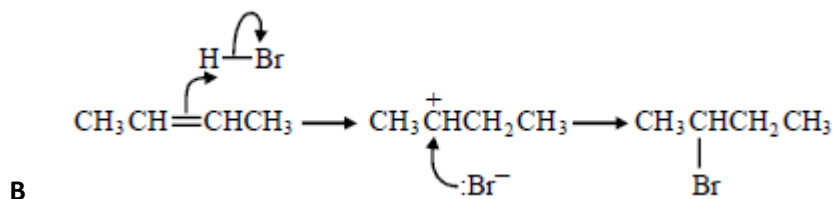
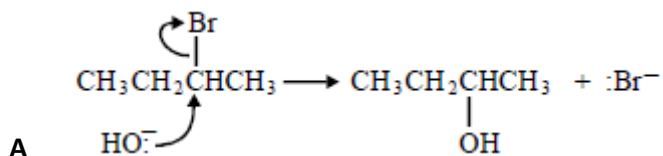
4. Which one of the following can react both by nucleophilic addition and by nucleophilic substitution?



(Total 1 mark)

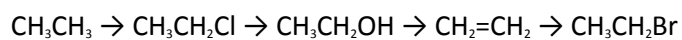


5. In which of the following is a curly arrow used incorrectly?



(Total 1 mark)

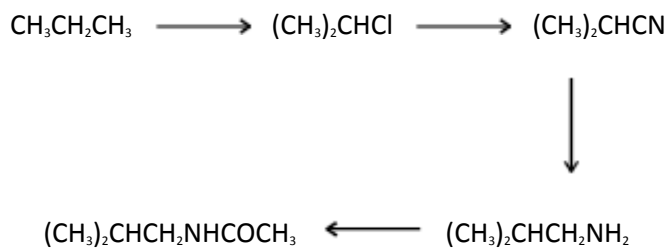
6. Which one of the following mechanisms is **not** involved in the reaction sequence below?



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

(Total 1 mark)

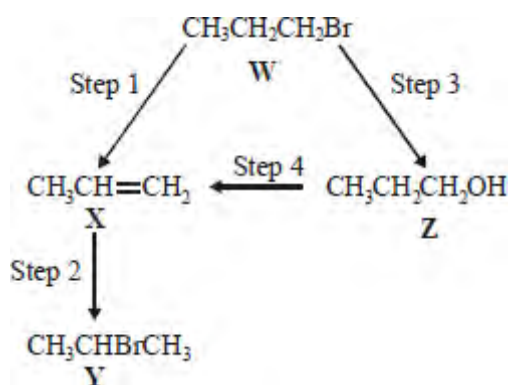
7. Which one of the following types of reaction mechanism is **not** involved in the above sequence?



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

(Total 1 mark)

8. For this question refer to the reaction scheme below.



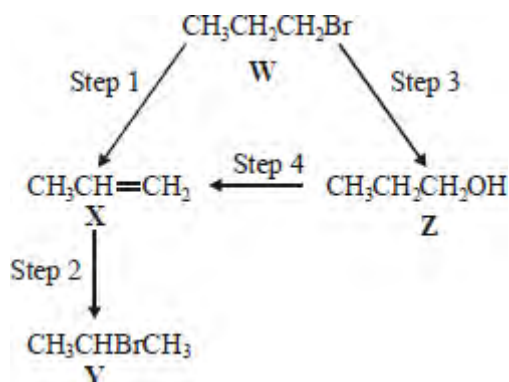
Which one of the following reagents would **not** bring about the reaction indicated?

- A** Step 1 : alcoholic KOH
- B** Step 2 : aqueous  $\text{Br}_2$
- C** Step 3 : aqueous NaOH
- C** Step 4 : concentrated  $\text{H}_2\text{SO}_4$

(Total 1 mark)



9. For this question refer to the reaction scheme below.



Which one of the following statements is **not** correct?

- A** Reaction of **W** with sodium cyanide followed by hydrolysis of the resulting product gives propanoic acid.
- B** Mild oxidation of **Z** produces a compound that reacts with Tollens' reagent, forming a silver mirror.
- C** **Z** reacts with ethanoic acid to produce the ester propyl ethanoate.
- C** **W** undergoes addition polymerisation to form poly(propene).

(Total 1 mark)

10. How many different alkenes are formed when 2-bromo-2-methylbutane reacts with ethanolic potassium hydroxide?

- A 2
- B 3
- C 4
- D 5

(Total 1 mark)

11. Which one of the following reactions does **not** involve donation of an electron pair?

- A  $\text{H}^+ + \text{CH}_3\text{NH}_2 \rightarrow \text{CH}_3\text{NH}_3^+$
- B  $\text{AlCl}_3 + \text{Cl}^- \rightarrow \text{AlCl}_4^-$
- C  $\text{CH}_3\text{Cl} + \text{CN}^- \rightarrow \text{CH}_3\text{CN} + \text{Cl}^-$
- D  $\frac{1}{2}\text{Cl}_2 + \text{I}^- \rightarrow \text{Cl}^- + \frac{1}{2}\text{I}_2$

(Total 1 mark)

12. Which one of the following statements explains best why fluoroalkanes are the least reactive haloalkanes?

- A Fluorine is much more electronegative than carbon.
- B The  $F^-$  ion is the most stable halide ion.
- C The C–F bond is the most polar carbon–halogen bond.
- D The C–F bond is the strongest carbon–halogen bond.

(Total 1 mark)

13. How many different alkenes are formed when 2-bromo-3-methylbutane reacts with ethanolic potassium hydroxide?

- A 2
- B 3
- C 4
- D 5

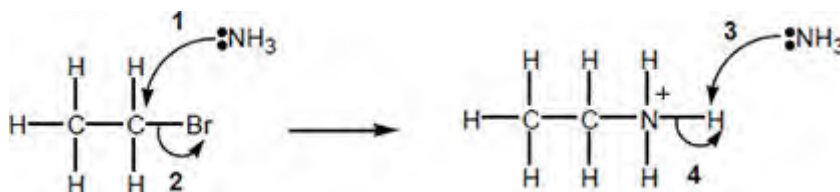
(Total 1 mark)

14. Why are fluoroalkanes unreactive?

- A Fluorine is highly electronegative. ☐
- B The  $F^-$  ion is very stable. ☐
- C They are polar molecules. ☐
- D The C–F bond is very strong. ☐

(Total 1 mark)

15. This question is about a method that can be used to prepare ethylamine.

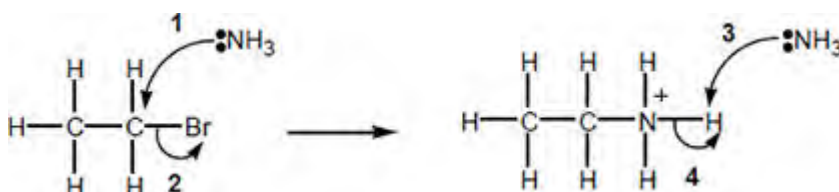


Which statement about the reaction is **not** correct?

- A Ethylamine is a primary amine. ☐
- B The mechanism is a nucleophilic substitution. ☐
- C Using an excess of bromoethane will prevent further reaction to form a mixture of amine products. ☐
- D Ammonium bromide is an ionic compound. ☐

(Total 1 mark)

16. This question is about a method that can be used to prepare ethylamine.



Which of the curly arrows in the mechanism is **not** correct?

- A 1 ☐
- B 2 ☐
- C 3 ☐
- D 4 ☐

(Total 1 mark)