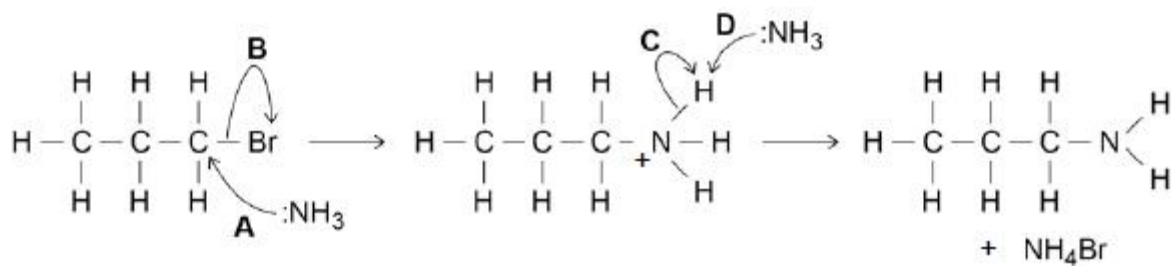


Name of the Student: _____

Max. Marks : 19 Marks

Time : 19 Minutes

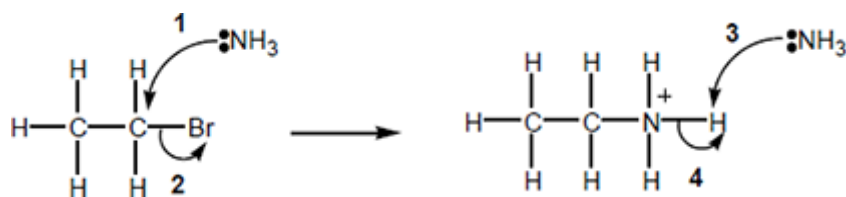
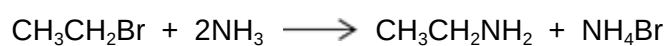
Q1.

Which of the arrows, labelled **A**, **B**, **C** or **D** in the mechanism in the diagram, is **not** correct?A ☐B ☐C ☐D ☐

(Total 1 mark)

Q2.

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



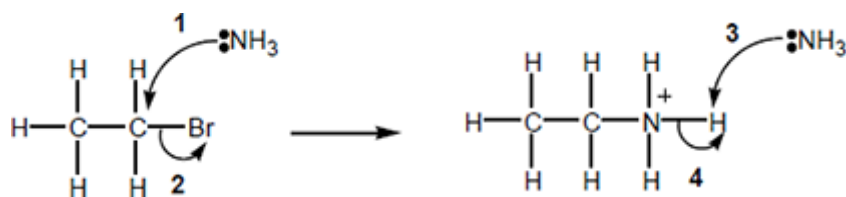
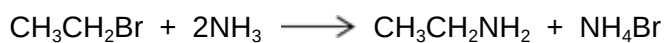
Which of the curly arrows in the mechanism is **not** correct?

- A 1 ☐
- B 2 ☐
- C 3 ☐
- D 4 ☐

(Total 1 mark)

Q3.

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)

Q4.

Pentanenitrile can be made by reaction of 1-bromobutane with potassium cyanide.

Which of these is the correct name for the mechanism of this reaction?

A Electrophilic addition ☐

B Electrophilic substitution ☐

C Nucleophilic addition ☐

D Nucleophilic substitution ☐

(Total 1 mark)

Q5.

Why are fluoroalkanes unreactive?

A Fluorine is highly electronegative.

☐

B The F^- ion is very stable.

☐

C They are polar molecules.

☐

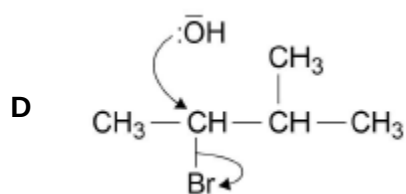
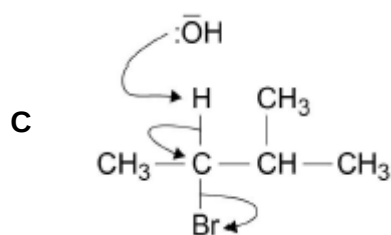
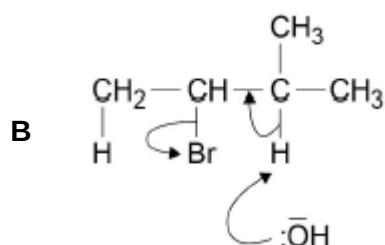
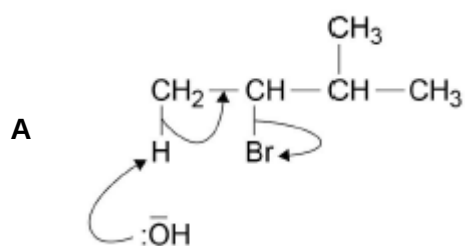
D The C–F bond is very strong.

☐

(Total 1 mark)

Q6.

Which of the following is a correct mechanism for the formation of 2-methylbut-2-ene from 2-bromo-3-methylbutane?



(Total 1 mark)

Q7.

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)

Q8.

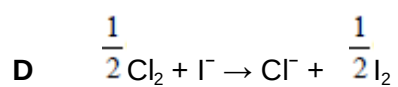
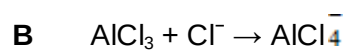
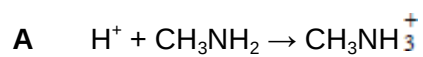
Which one of the following statements explains best why fluoroalkanes are the least reactive haloalkanes?

- 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)

Q9.

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



(Total 1 mark)

Q10.

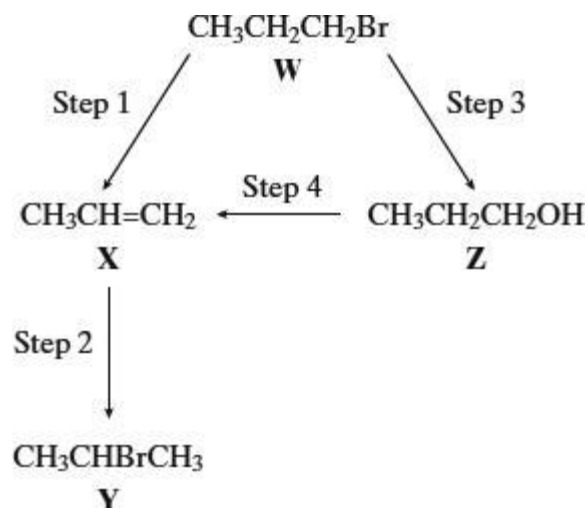
How many different alkenes are formed when 2-bromo-2-methylbutane reacts with ethanolic potassium hydroxide?

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

(Total 1 mark)

Q11.

For this question refer to the reaction scheme below.



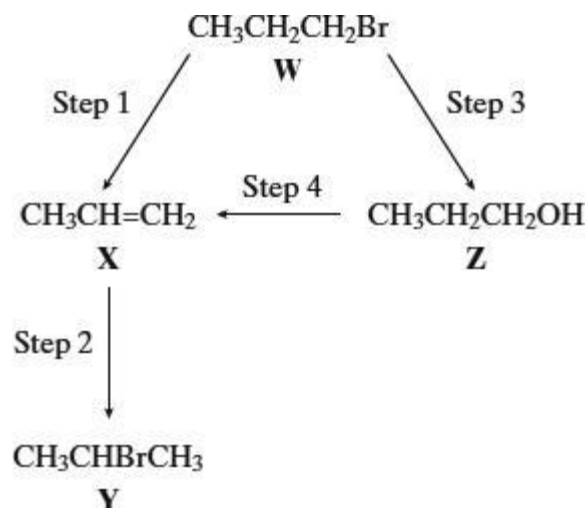
Which one of the following statements is **not** correct?

- 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.
- D** **W** undergoes addition polymerisation to form poly(propene).

(Total 1 mark)

Q12.

For this question refer to the reaction scheme below.



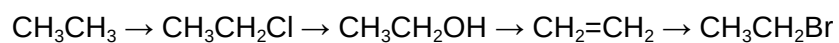
Which one of the following reagents would **not** bring about the reaction indicated?

- A Step 1 : alcoholic KOH
- B Step 2 : aqueous Br_2
- C Step 3 : aqueous NaOH
- D Step 4 : concentrated H_2SO_4

(Total 1 mark)

Q13.

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

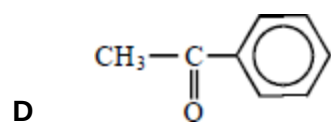
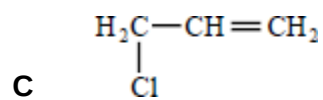
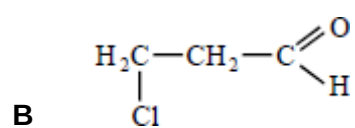
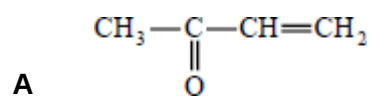


- A** electrophilic addition
- B** electrophilic substitution
- C** nucleophilic substitution
- D** free-radical substitution

(Total 1 mark)

Q14.

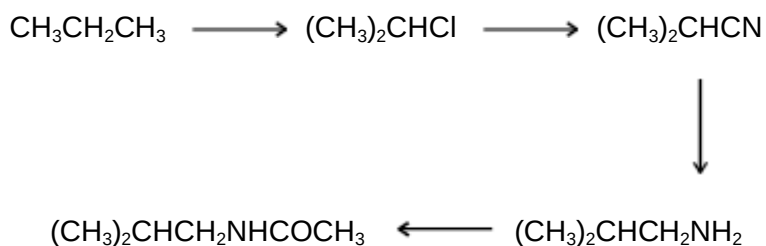
Which one of the following can react both by nucleophilic addition and by nucleophilic substitution?



(Total 1 mark)

Q15.

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

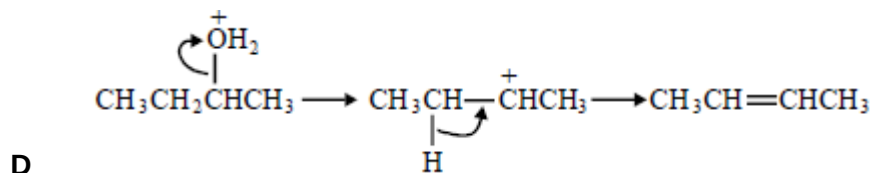
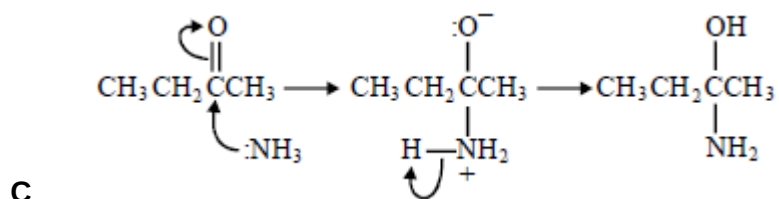
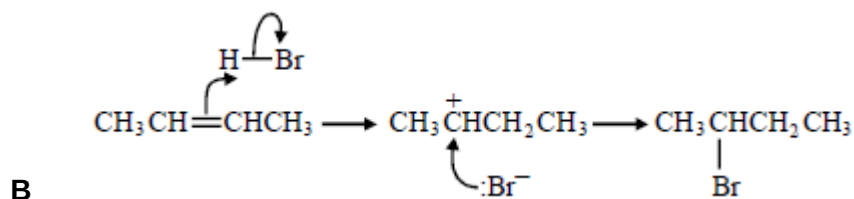
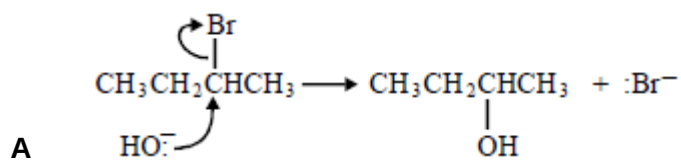


- A free-radical substitution
- B nucleophilic substitution
- C elimination
- D nucleophilic addition-elimination

(Total 1 mark)

Q16.

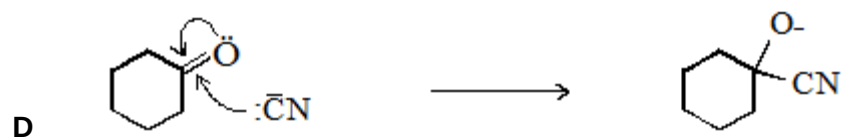
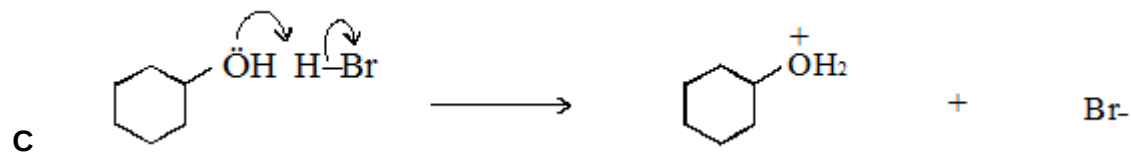
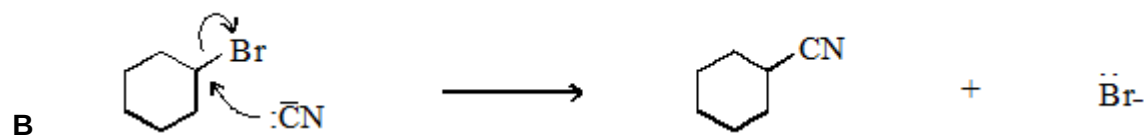
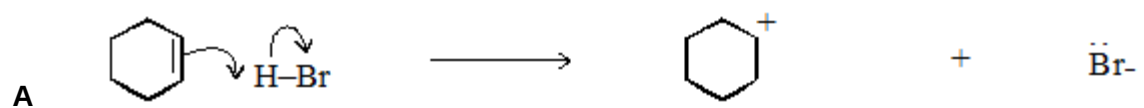
In which of the following is a curly arrow used incorrectly?



(Total 1 mark)

Q17.

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



(Total 1 mark)

Q18.

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

(Total 1 mark)

Q19.

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)