

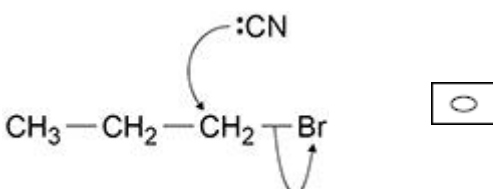
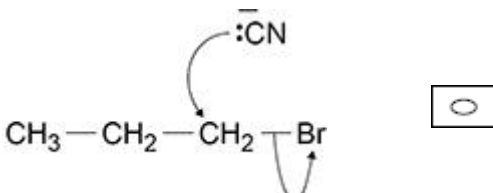
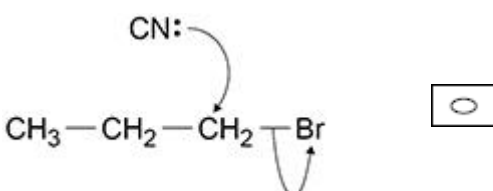
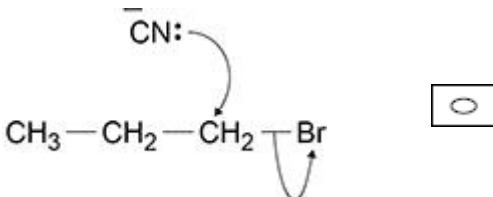
Q1.Which alkene shows *E-Z* isomerism?

- A 2,3-dimethylbut-2-ene
- B 4-methylpent-2-ene
- C methylpropene
- D pent-1-ene

(Total 1 mark)**Q2.**

The question below refers to the reaction of 1-bromopropane with a solution of potassium cyanide in aqueous ethanol.

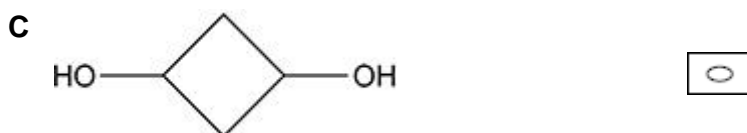
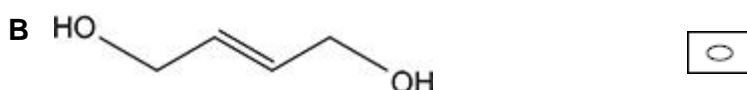
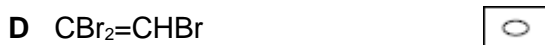
Which is the correct mechanism for the reaction?

- A 
- B 
- C 
- D 

(Total 1 mark)

Q3.

Which compound has a molecular formula that is different from the others?

**(Total 1 mark)****Q4.**Which compound has *E-Z* isomers?**(Total 1 mark)**

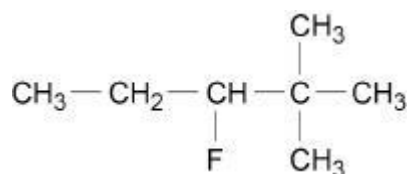
Q5.

Which is the correct general formula for non-cyclic compounds in the homologous series?

- | | | |
|------------------|------------------|-----------------------|
| A alcohols | $C_nH_{2n+2}O$ | <input type="radio"/> |
| B aldehydes | $C_nH_{2n+1}O$ | <input type="radio"/> |
| C esters | $C_nH_{2n+1}O_2$ | <input type="radio"/> |
| D primary amines | $C_nH_{2n+2}N$ | <input type="radio"/> |

(Total 1 mark)**Q6.**

What is the IUPAC name for this compound?



- | | |
|--------------------------------|-----------------------|
| A 2-dimethyl-3-fluoropentane | <input type="radio"/> |
| B 2,2-dimethyl-3-fluoropentane | <input type="radio"/> |
| C 3-fluoro-2,2-dimethylpentane | <input type="radio"/> |
| D 3-fluoro-2-dimethylpentane | <input type="radio"/> |

(Total 1 mark)**Q7.**

Which compound has the lowest relative molecular mass?

- | | |
|-------------------|-----------------------|
| A ethanoic acid | <input type="radio"/> |
| B 1-fluoropropane | <input type="radio"/> |
| C propanenitrile | <input type="radio"/> |
| D propylamine | <input type="radio"/> |

(Total 1 mark)

Q8.Which has *E-Z* isomers?

- A $C_2H_2Br_2$
- B C_2H_3Br
- C $C_2H_4Br_2$
- D C_2H_5Br

(Total 1 mark)**Q9.**Which compound is **not** an isomer of the following compound?

- A $CH_3CH_2COCH_3$
- B $CH_3CH=CHCH_2OH$
- C $(CH_3)_2CHCHO$
- D $CH_2=CHCH_2CHO$

(Total 1 mark)**Q10.**Which does **not** contain an asymmetric carbon atom?

- A $CH_3CH(CH_3)CH_2CH_3$
- B $CH_3CH_2CH(CH_3)CH_2CH_2CH_3$
- C $CH_3CH(OH)CH_2OH$
- D $CH_3CH_2CHClCH_3$

(Total 1 mark)

Q11.How many isomers are there of C_3H_9N ?

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

(Total 1 mark)**Q12.**How many structural isomers with an unbranched carbon chain have the molecular formula $C_4H_8Br_2$?

- A 4
- B 5
- C 6
- D 7

(Total 1 mark)**Q13.**

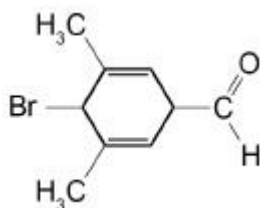
Which can be both an empirical and molecular formula of a stable compound?

- A CH_2O
- B P_4O_{10}
- C NH_2
- D CH_3

(Total 1 mark)

Q14.

Which statement is correct about the molecule shown?

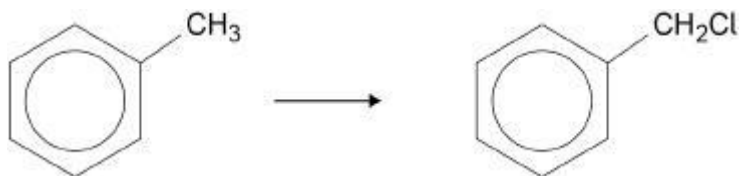


- A It reacts with HBr in an electrophilic substitution reaction.
- B It reacts with NaBH₄ in a nucleophilic addition-elimination reaction.
- C It reacts with ethanolic KOH in an elimination reaction.
- D It reacts with KCN in a nucleophilic substitution reaction.

(Total 1 mark)

Q15.

Which is the mechanism for this conversion?



- A Addition-elimination
- B Electrophilic substitution
- C Free-radical substitution
- D Nucleophilic substitution

(Total 1 mark)

Q16.

Which compound is a structural isomer of Z-but-2-ene?

- A butane
- B *E*-but-2-ene
- C cyclobutane
- D methylbut-2-ene

(Total 1 mark)

Q17.

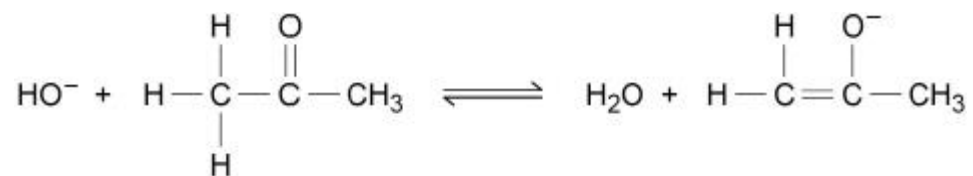
How many structural isomers are there with the molecular formula C_3H_6BrCl ?

- A 4
- B 5
- C 6
- D 7

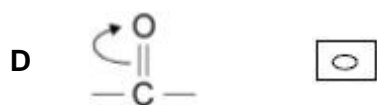
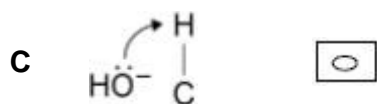
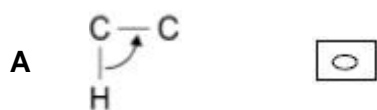
(Total 1 mark)

Q18.

In concentrated alkali, propanone reacts with hydroxide ions to form an equilibrium mixture as shown.



Which curly arrow does **not** appear in the mechanism of this reaction?



(Total 1 mark)

Q19.

Which compound does **not** show stereoisomerism?



(Total 1 mark)

Q20.




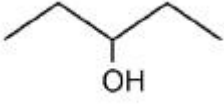
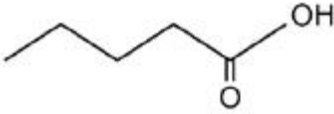
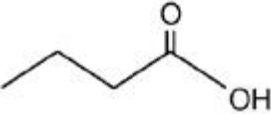
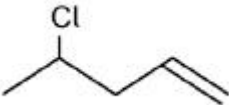
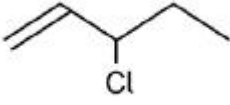
What is the total number of structural isomers with the molecular formula $C_2HBrClF_3$?

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

(Total 1 mark)

Q21.

Which is a pair of functional group isomers?

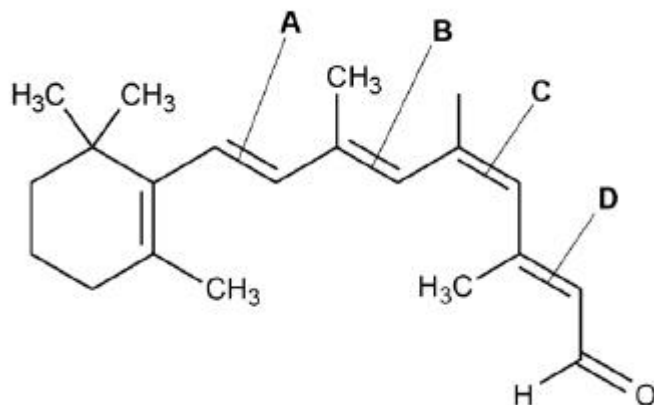
- A  
- B  
- C  
- D  

(Total 1 mark)

Q22.

Z-Retinal, shown in the diagram, is a component in vitamin A.

Which of the double bonds, labelled **A**, **B**, **C** or **D**, is responsible for the letter Z in the name?



A

B

C

D

(Total 1 mark)

Q23.

How many isomers have the molecular formula C₅H₁₂?

A 2

B 3

C 4

D 5

(Total 1 mark)

Q24.

How many structural isomers have the molecular formula C_4H_9Br ?

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

(Total 1 mark)

Q25.

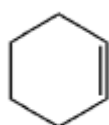
How many secondary amines have the molecular formula $C_4H_{11}N$?

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

(Total 1 mark)

Q26.

The structure of cyclohexene is shown.



Which of the following is the general formula of cyclic alkenes such as cyclohexene?

- A C_nH_{2n-4}
- B C_nH_{2n-2}
- C C_nH_{2n}
- D C_nH_{2n+2}

(Total 1 mark)