

Name of the Student: _____

Max. Marks : 20 Marks

Time : 20 Minutes

Q1.

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)

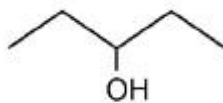
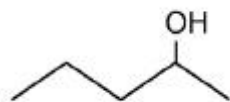
Q2.

Which is a pair of functional group isomers?

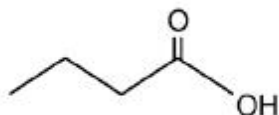
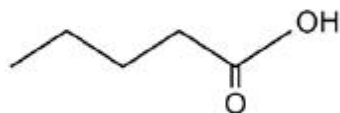
A



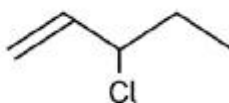
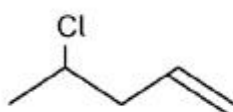
B



C



D

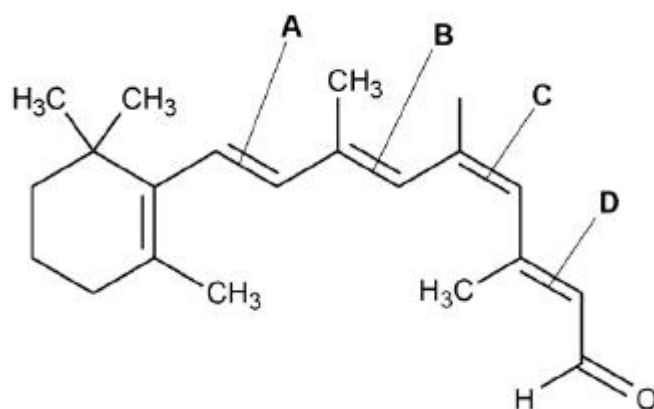


(Total 1 mark)

Q3.

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 ☐

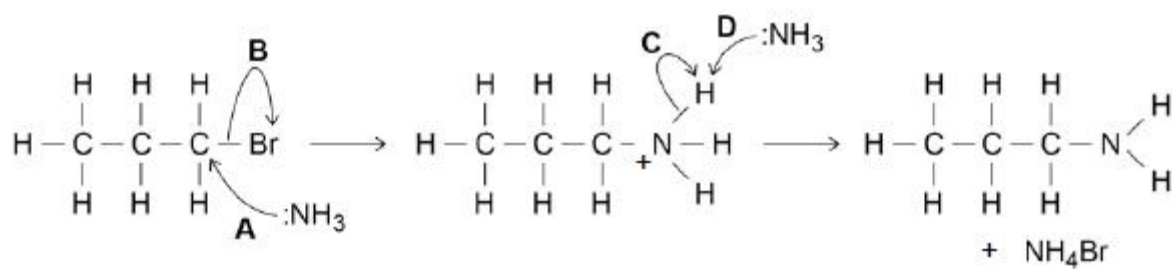
C ☐

D ☐

(Total 1 mark)

Q4.

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)

Q5.

How many isomers have the molecular formula C_5H_{12} ?

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

(Total 1 mark)

Q6.

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

- A 2 ☐
- B 3 ☐
- C 4 ☐
- D 5 ☐

(Total 1 mark)

Q7.

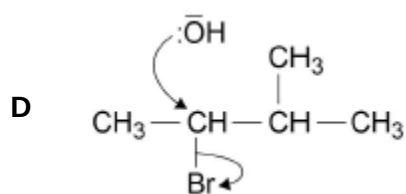
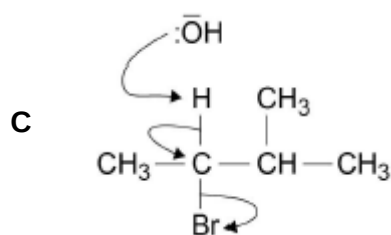
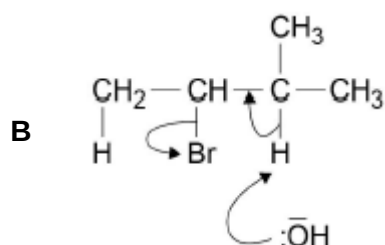
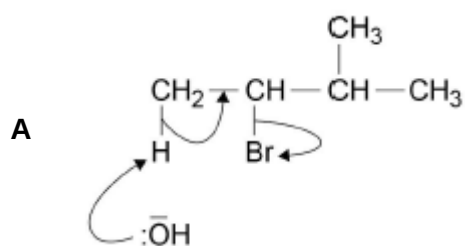
How many structural isomers have the molecular formula C_4H_9Br ?

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

(Total 1 mark)

Q8.

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



(Total 1 mark)

Q9.

An organic compound is found to contain 40.0% carbon, 6.7% hydrogen and 53.3% oxygen.

Which of the following compounds could this be?

A Ethanol

☐

B Ethanoic acid

☐

C Methanol

☐

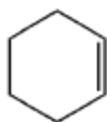
D Methanoic acid

☐

(Total 1 mark)

Q10.

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)

Q11.

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)

Q12.

Which one of the following can exhibit both geometrical and optical isomerism?

- A $(\text{CH}_3)_2\text{C}=\text{CHCH}(\text{CH}_3)\text{CH}_2\text{CH}_3$
- B $\text{CH}_3\text{CH}_2\text{CH}=\text{CHCH}(\text{CH}_3)\text{CH}_2\text{CH}_3$
- C $(\text{CH}_3)_2\text{C}=\text{C}(\text{CH}_2\text{CH}_3)_2$
- D $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}(\text{CH}_3)\text{C}=\text{CH}_2$

(Total 1 mark)

Q13.

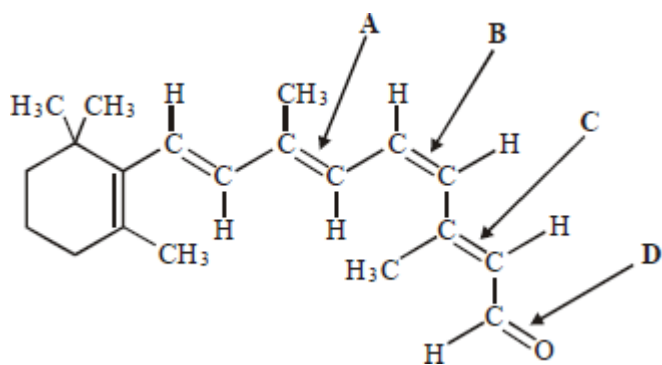
Which one of the following is a pair of functional group isomers?

- A $\text{CH}_3\text{COOCH}_2\text{CH}_3$ and $\text{CH}_3\text{CH}_2\text{COOCH}_3$
- B $(\text{CH}_3)_2\text{CHCH}(\text{CH}_3)_2$ and $(\text{CH}_3)_3\text{CCH}_2\text{CH}_3$
- C $\text{CH}_3\text{CH}_2\text{OCH}_3$ and $(\text{CH}_3)_2\text{CHOH}$
- D $\text{ClCH}_2\text{CH}_2\text{CH}=\text{CH}_2$ and $\text{CH}_3\text{CH}=\text{CHCH}_2\text{Cl}$

(Total 1 mark)

Q14.

The compound *cis*-retinal is shown below.

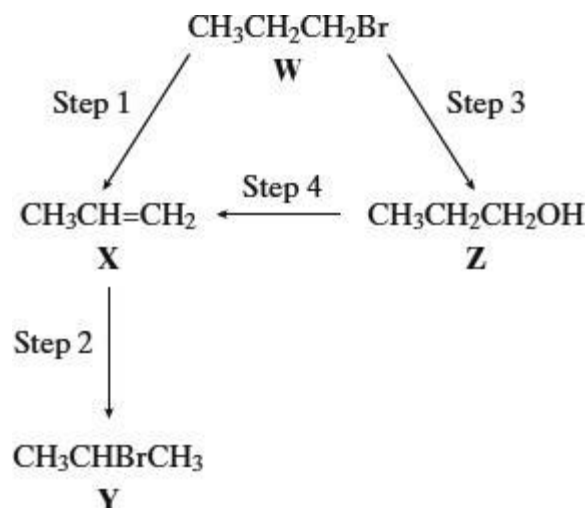


Which one of the labelled bonds leads to the prefix in the name?

(Total 1 mark)

Q15.

For this question refer to the reaction scheme below.



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

- A** **W** and **Y** are structural isomers.
- B** **Z** is a primary alcohol.
- C** **Y** gives two peaks in its proton n.m.r. spectrum.
- D** **X** has geometrical isomers.

(Total 1 mark)

Q16.

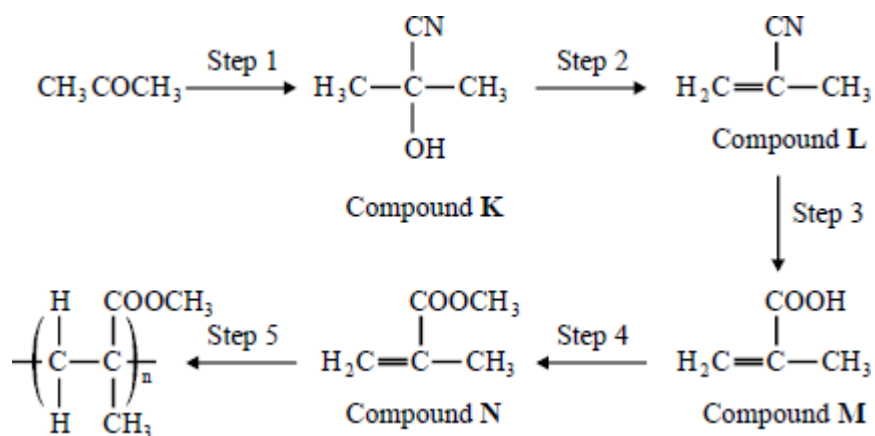
Propanone can be reduced to form an alcohol. A functional group isomer of the alcohol formed is

- A $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
- B $\text{CH}_3\text{CH}_2\text{CHO}$
- C $\text{CH}_3\text{OCH}_2\text{CH}_3$
- D CH_3COCH_3

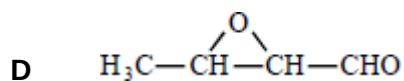
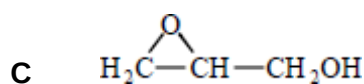
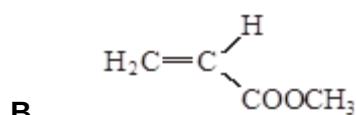
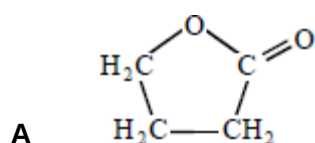
(Total 1 mark)

Q17.

This question concerns the preparation of the plastic poly(methyl 2-methylpropenoate) (*Perspex*), starting from propanone.



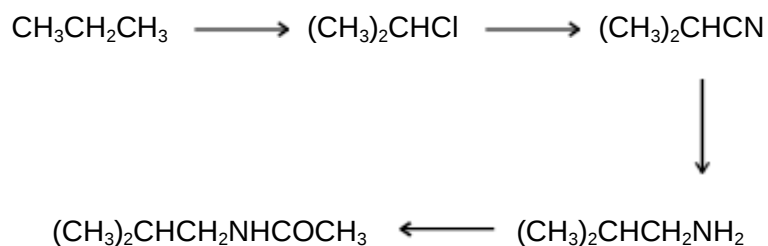
Which one of the following is **not** a structural isomer of Compound **M**?



(Total 1 mark)

Q18.

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)

Q19.

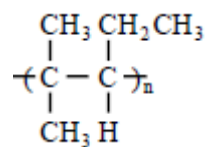
The number of structural isomers of $\text{C}_3\text{H}_2\text{Cl}_6$ is

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

(Total 1 mark)

Q20.

The correct name for the alkene monomer which forms the polymer shown below is



- A 2-methyl-3-ethylpropene
- B 2-methylpent-2-ene
- C 2-methylpent-3-ene
- D 4-methylpent-2-ene

(Total 1 mark)