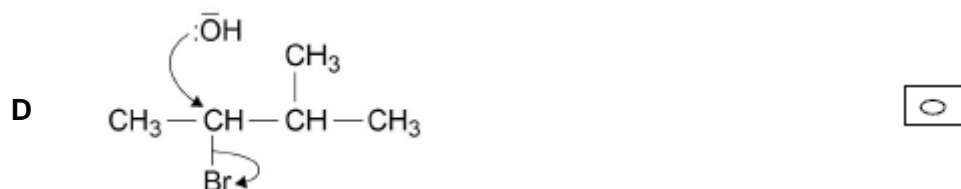
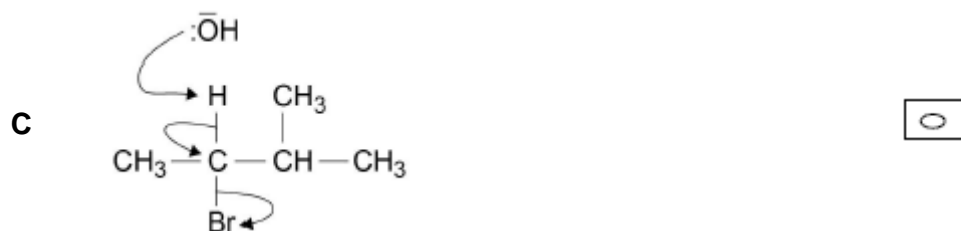
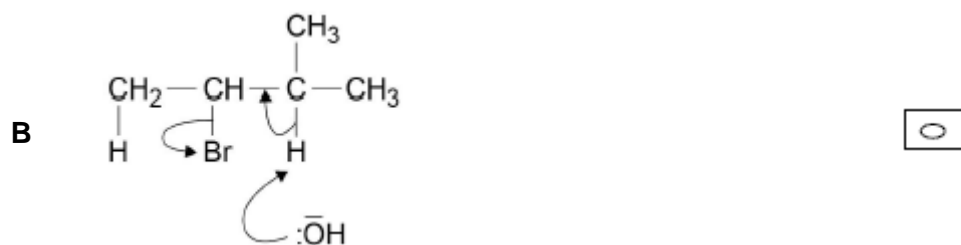
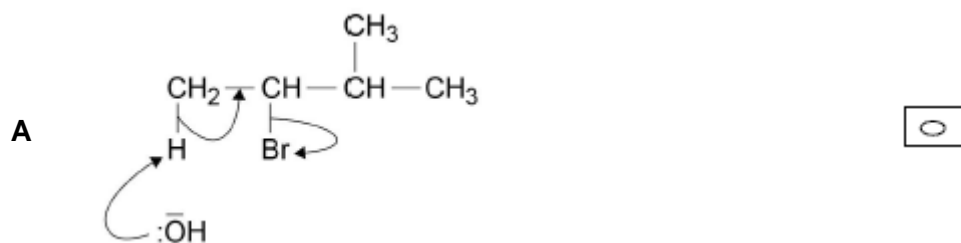


1

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



(Total 1 mark)

2

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

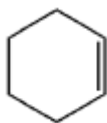
C Methanol

D Methanoic acid

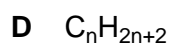
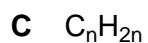
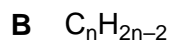
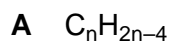
(Total 1 mark)

3

The structure of cyclohexene is shown.



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



(Total 1 mark)

4

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



(Total 1 mark)

5

How many structural isomers have the molecular formula C_4H_9Br ?



(Total 1 mark)

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

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

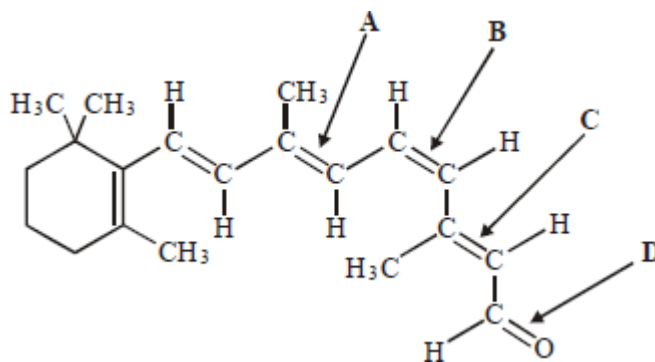
(Total 1 mark)

7 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)

8 The compound *cis*-retinal is shown below.



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

(Total 1 mark)

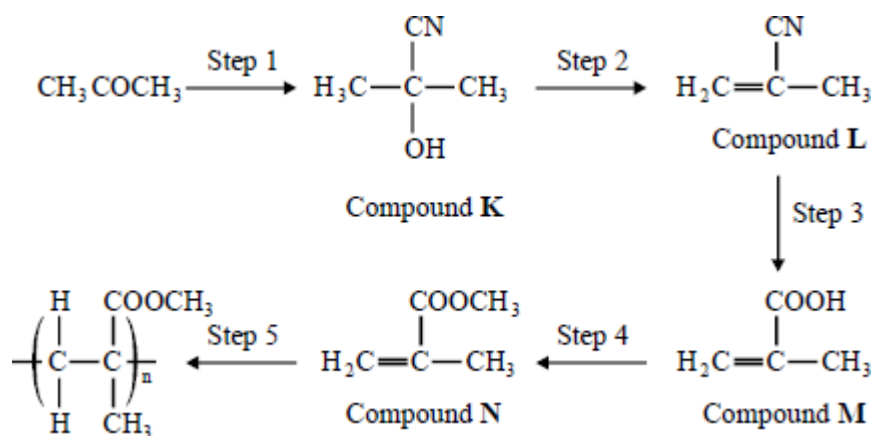
9 Which one of the following is a pair of functional group isomers?

- A $CH_3COOCH_2CH_3$ and $CH_3CH_2COOCH_3$
- B $(CH_3)_2CHCH(CH_3)_2$ and $(CH_3)_3CCH_2CH_3$
- C $CH_3CH_2OCH_3$ and $(CH_3)_2CHOH$
- D $ClCH_2CH_2CH=CH_2$ and $CH_3CH=CHCH_2Cl$

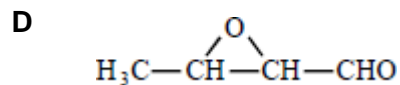
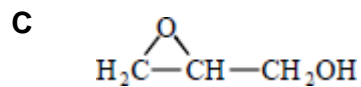
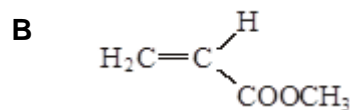
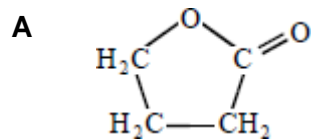
(Total 1 mark)

10

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

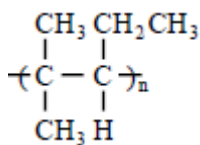


Which one of the following is **not** a structural isomer of Compound **M**?



(Total 1 mark)

11 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)

12 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)

13 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)

14

The correct systematic name for $(\text{CH}_3)_2\text{CHC}(\text{CH}_3)=\text{C}(\text{CH}_3)\text{CH}_2\text{CH}_3$ is

- A 2-ethyl-3,4-dimethylpent-2-ene
- B 4-ethyl-2,3-dimethylpent-3-ene
- C 2,3,4-trimethylhex-3-ene
- D 3,4,5-trimethylhex-3-ene

(Total 1 mark)

15

The correct systematic name for $\text{CH}_3\text{CH}_2\text{C}(\text{CH}_3)=\text{C}(\text{CH}_2\text{CH}_3)\text{CH}_3$ is

- A 2,3-diethylbut-2-ene
- B 2-ethyl-3-methylpent-2-ene
- C 4-ethyl-3-methylpent-3-ene
- D 3,4-dimethylhex-3-ene

(Total 1 mark)

16

Which one of the following is the correct name for $\text{CH}_3\text{C}(\text{CH}_2\text{CH}_3)=\text{CBrCH}_3$?

- A 2-bromo-3-methylpent-2-ene
- B 2-bromo-3-ethylbut-2-ene
- C 3-bromo-2-ethylbut-2-ene
- D 4-bromo-3-methylpent-3-ene

(Total 1 mark)

17

The number of structural isomers of molecular formula $\text{C}_4\text{H}_9\text{Br}$ is

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

(Total 1 mark)

Mark schemes

1	B	[1]
2	B	[1]
3	B	[1]
4	B	[1]
5	C	[1]
6	B	[1]
7	A	[1]
8	B	[1]
9	C	[1]
10	C	[1]
11	B	[1]
12	C	[1]
13	B	[1]
14	C	[1]
15	D	[1]
16	A	[1]
17	B	[1]