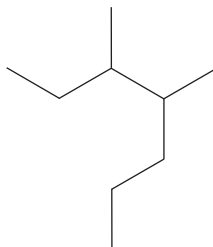


1 What is the systematic name of the following?



- A 3-methyl-2-propylpentane
- B 3-methyl-4-propylpentane
- C 3,4-dimethylheptane
- D 4,5-dimethylheptane

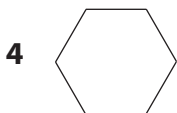
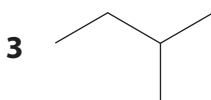
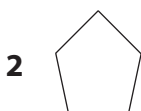
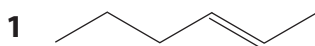
(Total for Question = 1 mark)

2 Which of the following shows geometric isomerism?

- A prop-1-ene
- B but-1-ene
- C 1,1-dichloroethene
- D 1,2-dichloroethene

(Total for Question = 1 mark)

3 This question is about the organic compounds with skeletal formulae as shown.



(a) Which compounds are isomers?

(1)

- A 1 an
- B 1 an
- C 1 an
- D 2 an

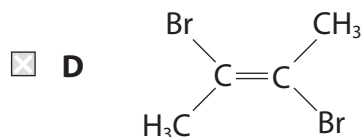
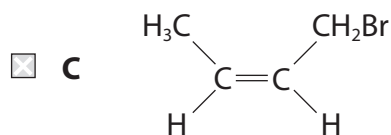
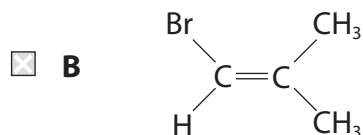
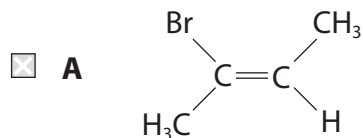
(b) Which compound has the same molecular formula and empirical formula?

(1)

- A 1
- B 2
- C 3
- D 4

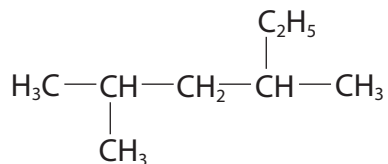
**(Total for Question = 2 marks)**

4 Which molecule does **not** exhibit *E/Z* isomerism?



(Total for Question = 1 mark)

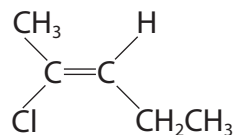
5 What is the systematic name for the compound with the following formula?



- A** 2-methyl-4-ethylpentane
- B** 2-ethyl-4-methylpentane
- C** 2,4-dimethylhexane
- D** 3,5-dimethylhexane

(Total for Question = 1 mark)

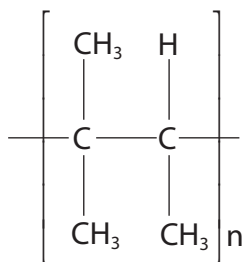
6 Name the compound below.



- A E-2-chloropent-2-ene
- B Z-2-chloropent-3-ene
- C E-2-chloropent-3-ene
- D Z-2-chloropent-2-ene

(Total for Question = 1 mark)

7

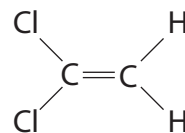
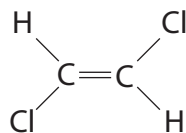
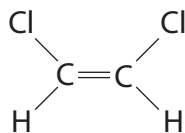
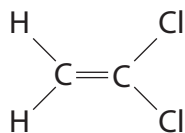


Which is the IUPAC name for the monomer which reacts to make the polymer shown above?

- A 2-methylbut-1-ene
- B 2-methylbut-2-ene
- C 1,2-dimethylpropene
- D 1,1,2-trimethylethene

(Total for Question = 1 mark)

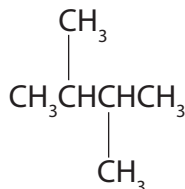
8 Which of the following pairs are *cis-trans* isomers?



- A 1 and 2
- B 1 and 4
- C 2 and 3
- D 3 and 4

(Total for Question = 1 mark)

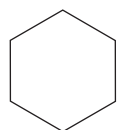
9 What is the systematic name for the hydrocarbon shown below?



- A 1,4-dimethylbutane
- B 2,3-dimethylbutane
- C 2,3-dimethylhexane
- D 1,1,2,2-tetramethylethane

(Total for Question = 1 mark)

10 This question is about the organic compounds shown below.



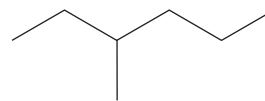
W



X



Y



Z

(a) The compounds which are isomers are

(1)

- A W and X
- B W and Y
- C W and Z
- D X and Z

(b) Which compound can react with chlorine to form  $C_6H_{12}Cl_2$  as the **only** product?

(1)

- A Compound W
- B Compound X
- C Compound Y
- D Compound Z

(c) Which compound is reformed in the oil industry, producing one mole of a compound with formula  $C_6H_6$  and four moles of hydrogen,  $H_2$ , only?

(1)

- A Compound W
- B Compound X
- C Compound Y
- D Compound Z

**(Total for Question = 3 marks)**

11 Consider the following Group 2 compounds.

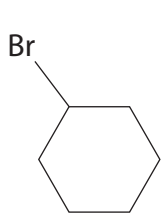
Group 2 hydroxides	Group 2 sulfates
$\text{Mg(OH)}_2$	$\text{MgSO}_4$
$\text{Ca(OH)}_2$	$\text{CaSO}_4$
$\text{Sr(OH)}_2$	$\text{SrSO}_4$

The solubility

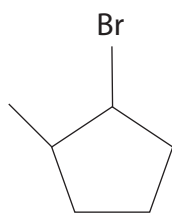
- A** increases down the group for both hydroxides and sulfates.
- B** increases down the group for hydroxides but increases up the group for sulfates.
- C** increases up the group for hydroxides but increases down the group for sulfates.
- D** increases up the group for both hydroxides and sulfates.

**(Total for Question = 1 mark)**

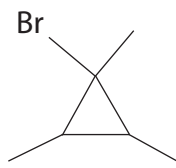
12 The skeletal formulae of some 6-carbon bromoalkanes are shown below.



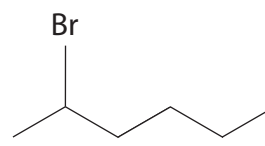
A



B



C



D

(a) Which of the above bromoalkanes is **not** a structural isomer of the others?

(1)

A

B

C

D

(b) Which of the above is **not** a secondary bromoalkane?

(1)

A

B

C

D

**(Total for Question = 2 marks)**

13 Which of the following compounds shows geometric (*E-Z* or *cis-trans*) isomerism?

A but-1-ene

B 2-methylbut-1-ene

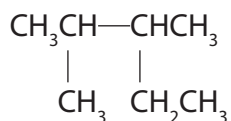
C but-2-ene

D 2-methylbut-2-ene

**(Total for Question = 1 mark)**



14 What is the systematic name for the compound with the following formula?



- A 2-methyl-3-ethylbutane
- B 1,2,3-trimethylbutane
- C 2,3-dimethylpropane
- D 2,3-dimethylpentane

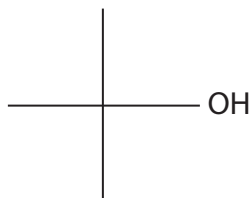
(Total for Question = 1 mark)

15 Which of the following alkenes exhibits *E/Z* isomerism?

- A But-1-ene
- B But-2-ene
- C 2-Methylpropene
- D Propene

(Total for Question = 1 mark)

16

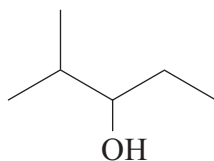


The systematic name of the compound with skeletal formula shown above is

- A 1,1-dimethylethanol.
- B 2,2-dimethylethanol.
- C 2-methylpropan-1-ol.
- D 2-methylpropan-2-ol.

(Total for Question = 1 mark)

17 An organic compound is represented by the skeletal formula shown below.



The compound is

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

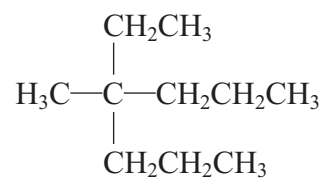
(Total for Question 1 mark)

18 How many structural isomers does the alkane  $\text{C}_5\text{H}_{12}$  have?

- A 4
- B 3
- C 2
- D 1

(Total for Question 1 mark)

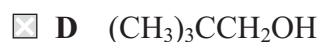
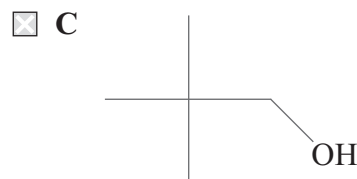
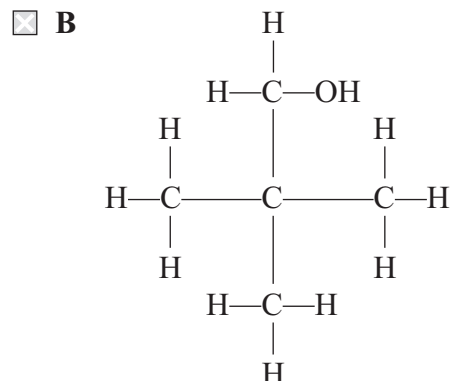
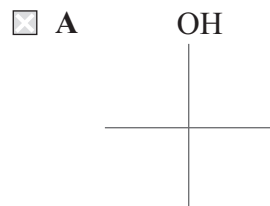
19 What is the IUPAC name of the compound shown below?



- A 2-ethyl-2-propylpentane
- B 3-methyl-3-propylhexane
- C 4-methyl-4-propylhexane
- D 4-ethyl-4-methylheptane

(Total for Question 1 mark)

20 Which of the following formulae does **not** represent 2,2-dimethylpropan-1-ol?



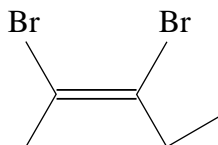
(Total for Question 1 mark)

21 Many organic compounds have toxic vapours. For this reason

- A a naked flame should never be used when carrying out experiments with organic compounds.
- B gloves should usually be worn when carrying out experiments with organic compounds.
- C a fume cupboard should be used wherever possible when carrying out experiments with organic compounds.
- D most experiments with organic compounds are banned in schools and colleges.

(Total for Question 1 mark)

22 What is the correct name for the compound below?



- A *E*-2,3-dibromopent-2-ene
- B *E*-2,3-dibromopent-3-ene
- C *Z*-2,3-dibromopent-3-ene
- D *Z*-2,3-dibromopent-2-ene

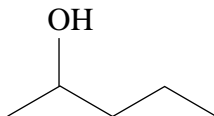
(Total for Question = 1 mark)

23 Which of the following alkenes exhibits **E-Z** isomerism?

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

(Total for Question = 1 mark)

24 What is the correct systematic name for the alcohol shown below?



- A hexan-4-ol
- B hexan-2-ol
- C pentan-4-ol
- D pentan-2-ol

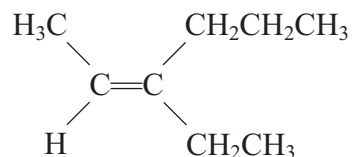
(Total for Question = 1 mark)

25 Isomers have different

- A empirical formulae.
- B molecular formulae.
- C skeletal formulae.
- D molar masses.

(Total for Question = 1 mark)

26 Name the alkene shown below.



- A Z-4-ethylhex-4-ene
- B E-3-ethylhex-2-ene
- C Z-3-ethylhex-2-ene
- D E-3-propylpent-2-ene

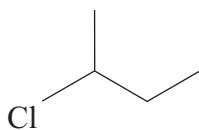
(Total for Question 1 mark)

27 How many compounds have the formula  $\text{C}_5\text{H}_{12}$ ?

- A 1
- B 2
- C 3
- D 4

(Total for Question 1 mark)

28 The compound

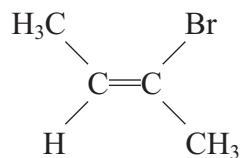


has the systematic name

- A 2-chlorobutane
- B 3-chlorobutane
- C 1-chloro-1-methylpropane
- D 1-chloro-2-methylbutane

(Total for Question 1 mark)

29 What is the correct name for the molecule shown below?



- A Z-2-bromobut-2-ene
- B E-2-bromobut-2-ene
- C E-3-bromobut-2-ene
- D Z-3-bromobut-2-ene

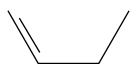
(Total for Question 1 mark)

30 The compound butane has

- A the empirical formula  $C_4H_{10}$  and the molecular formula  $C_2H_5$ .
- B the empirical formula  $C_2H_5$  and the molecular formula  $C_4H_{10}$ .
- C the empirical formula  $C_2H_5$  and the molecular formula  $C_nH_{2n+2}$ .
- D the empirical formula  $C_nH_{2n+2}$  and the molecular formula  $C_4H_{10}$ .

(Total for Question 1 mark)

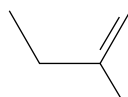
31 This question concerns the following compounds



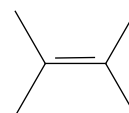
A



B



C



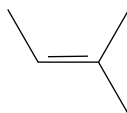
D

Which of these compounds will show geometric (*E* *Z* or *cis/trans*) isomerism?

- A
- B
- C
- D

(Total for Question 1 mark)

32 The correct name for the compound shown below is

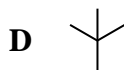
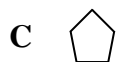
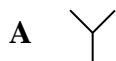


- A 2-methylbut-3-ene
- B 3-methylbut-2-ene
- C 3-methylbut-3-ene
- D 2-methylbut-2-ene

(Total for Question 1 mark)



33 This question is about the organic compounds with skeletal formulae as shown:



(a) Which compound is 2-methylpropane?

(1)

**A**

**B**

**C**

**D**

(b) Which compound has the molecular formula  $C_5H_{12}$ ?

(1)

**A**

**B**

**C**

**D**

(c) Which compounds are isomers?

(1)

**A** compound **A** and compound **C**

**B** compound **B** and compound **C**

**C** compound **B** and compound **D**

**D** compound **C** and compound **D**

(d) Which compound reacts with acidified potassium manganate(VII) to form a diol?

(1)

- A
- B
- C
- D

(Total for Question = 4 marks)

34 The structural formula of 5-chloro-2,2-dimethylhexane is

- A 
$$\begin{array}{ccccccc} & & \text{H} & & & \text{CH}_3 & \\ & & | & & & | & \\ \text{CH}_3 & - & \text{C} & - & \text{CH}_2 & - & \text{C} & - & \text{H} \\ & & | & & & & | & & \\ & & \text{Cl} & & & & \text{CH}_3 & & \end{array}$$
- B 
$$\begin{array}{ccccccccccc} & & \text{Cl} & & & & & & \text{CH}_3 & & \\ & & | & & & & & & | & & \\ \text{H} & - & \text{C} & - & \text{CH}_2 & - & \text{CH}_2 & - & \text{CH}_2 & - & \text{C} & - & \text{CH}_3 \\ & & | & & & & & & | & & | & & \\ & & \text{Cl} & & & & & & \text{CH}_3 & & \text{CH}_3 & & \end{array}$$
- C 
$$\begin{array}{ccccccccccc} & & \text{Cl} & & & & & & \text{CH}_3 & & \\ & & | & & & & & & | & & \\ \text{CH}_3 & - & \text{C} & - & \text{CH}_2 & - & \text{CH}_2 & - & \text{C} & - & \text{CH}_3 \\ & & | & & & & & & | & & \\ & & \text{H} & & & & & & \text{CH}_3 & & \end{array}$$
- D 
$$\begin{array}{ccccccccccc} & & \text{Cl} & & & & & & \text{Cl} & & \\ & & | & & & & & & | & & \\ \text{CH}_3 & - & \text{C} & - & \text{CH}_2 & - & \text{CH}_2 & - & \text{C} & - & \text{CH}_3 \\ & & | & & & & & & | & & \\ & & \text{CH}_3 & & & & & & \text{CH}_3 & & \end{array}$$

(Total for Question = 1 mark)