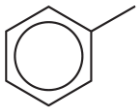
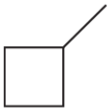
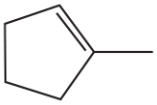
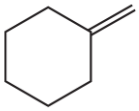
Basic Concepts of Organic Chemistry (MCQ)

1. Which compound is unsaturated, alicyclic and contains an alkyl group?

A	
B	
C	
D	

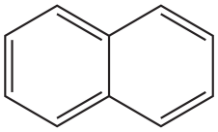
Your answer ☐ **[1]**

2. How many structural isomers of $C_6H_{14}O$ are tertiary alcohols?

A 1
B 2
C 3
D 4

Your answer ☐ **[1]**

3. The structure of naphthalene is shown below.

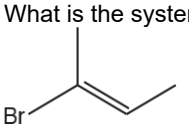


What is the molecular formula of naphthalene?

A $C_{10}H_8$
B $C_{10}H_{10}$
C $C_{12}H_{10}$
D $C_{12}H_{12}$

Your answer ☐ **[1]**

4. What is the systematic name of the compound below?



A *E*-2-bromobut-2-ene
B *Z*-2-bromobut-2-ene
C *E*-1,2-dimethyl-1-bromoethene
D *Z*-1,2-dimethyl-1-bromoethene

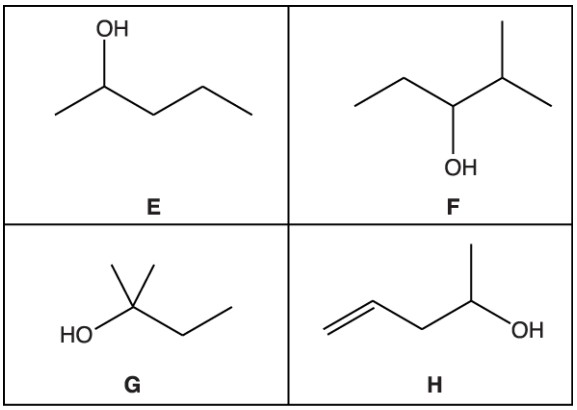
Your answer ☐ **[1]**

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

A 2
B 3
C 4
D 5

Your answer ☐ **[1]**

6. The skeletal formulae of four alcohols, **E**, **F**, **G** and **H**, are shown below.



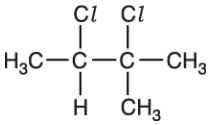
Which pair of alcohols are structural isomers of each other?

A **E** and **F**
B **E** and **G**
C **E** and **H**
D **F** and **G**

Your answer ☐

[1]

7. What is the name of the following compound?

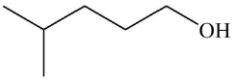


A 1,2-dichloro-1,2-dimethylpropane
B 2,3-dichloro-2,3-dimethylpropane
C 2,3-dichloro-2-methylbutane
D 2,3-dichloro-3-methylbutane

Your answer ☐

[1]

8. What is the systematic name for the molecule shown below?



A. hexan-1-ol
B. 2-methylpentan-5-ol
C. 4-methylpentan-1-ol
D. 4-methylpentanol

Your answer ☐

[1]

END OF QUESTION PAPER

Mark scheme – Basic Concepts of Organic Chemistry (MCQ)

Question			Answer/Indicative content	Marks	Guidance
1			**C**	1 (AO1.2)	**Examiner's Comments** Unsaturated, alicyclic and alkyl are all terms that are introduced in AS Chemistry and about two-thirds of candidates recognised that option C met the three criteria. From the annotations on scripts, most candidates ruled out the saturated option B. A sizeable number of candidates selected either the aromatic option A, or structure D which does not possess an alkyl group. It is important that candidates learn the terms introduced in the specification Section 4.1.1, Basic concepts in organic chemistry.
			Total	**1**	
2			**C**	**1**	**ALLOW** 3 **Examiner's Comments** The responses showed a reasonably even split across all options with relatively few correct responses of C. A good route to success here is to draw out the possibilities.
			Total	**1**	
3			**A**	**1**	**Examiner's Comments** Many candidates added H atoms to the structure to aid their choice. Most candidates selected the correct response of A, with a sizeable number selecting B (by adding two H atoms where the two rings join).
			Total	**1**	
4			A	**1**	**Examiner's Comments** Able candidates who approached this question correctly (based on priority) obtained the correct answer. Some candidates seemed to look for the same group (CH_3) on the same side (*cis*), and incorrectly identified the compound as answer option B, the Z isomer.

			Total	**1**	
5			B	**1**	**Examiner's Comments** Most candidates correctly identified the correct number of isomers. However, about a third of candidates gave the incorrect answer C, perhaps trying to use an ethyl branch.
			Total	**1**	
6			B	1	**Examiner's Comments** Generally scored well.
			Total	**1**	
7			C	1	**Examiner's Comments** Generally scored well.
			Total	**1**	
8			C	1	
			Total	**1**	