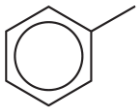
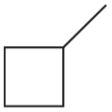
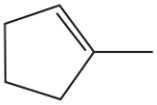
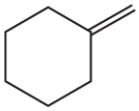
# Basic Concepts of Organic Chemistry (MCQ)

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

| | |
|---|---|
| **A** |  |
| **B** |  |
| **C** |  |
| **D** |  |

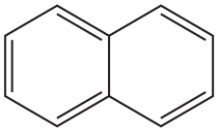
Your answer ☐ **[1]**

**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.

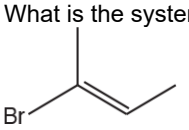


What is the molecular formula of naphthalene?

**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

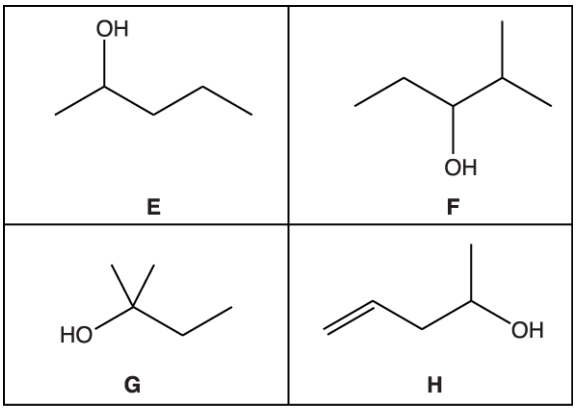
Your answer ☐ **[1]**

**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.



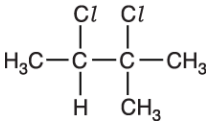

Which pair of alcohols are structural isomers of each other?

**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?

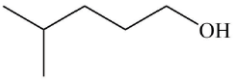



**A** 1,2-dichloro-1,2-dimethylpropane
**B** 2,3-dichloro-2,3-dimethylpropane
**C** 2,3-dichloro-2-methylbutane
**D** 2,3-dichloro-3-methylbutane

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**<br><br>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<br><br>**Examiner's Comments**<br><br>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**<br><br>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**<br>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**<br>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**<br>Generally scored well. |
| | | | **Total** | **1** | |
| 7 | | | C | 1 | **Examiner's Comments**<br>Generally scored well. |
| | | | **Total** | **1** | |
| 8 | | | C | 1 | |
| | | | **Total** | **1** | |