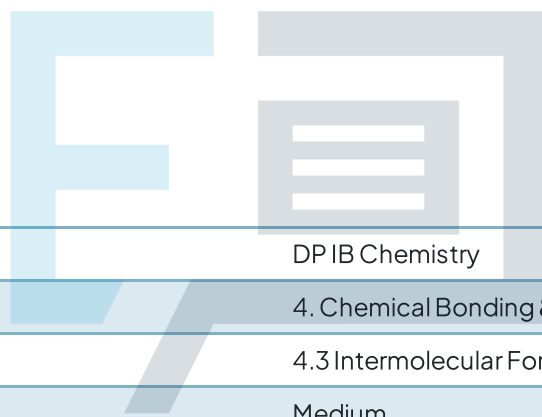




4.3 Intermolecular Forces & Metallic Bonding

Question Paper



Course	DP IB Chemistry
Section	4. Chemical Bonding & Structure
Topic	4.3 Intermolecular Forces & Metallic Bonding
Difficulty	Medium

Exam Papers Practice

To be used by all students preparing for DP IB Chemistry HL
Students of other boards may also find this useful

Question 1

Which of the following metals would have the highest melting point?

- A. Na
- B. Mg
- C. Al
- D. K

[1 mark]

Question 2

The correct order of increasing boiling points for the following compounds is

- A. 1-chlorobutane < butane < butan-1-ol
- B. Butan-1-ol < 1-chlorobutane < butane,
- C. Butane < 1-chlorobutane < butan-1-ol
- D. Butan-1-ol < butane < 1-chlorobutane

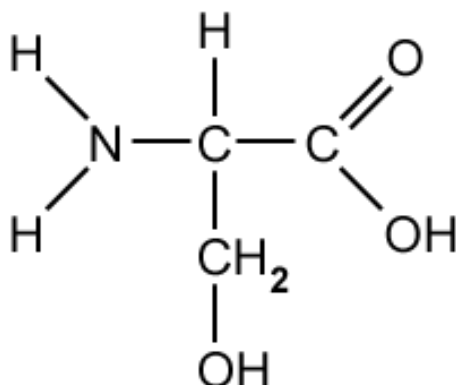
[1 mark]



Exam Papers Practice

Question 3

What is the strongest type of intermolecular force exhibited in the amino acid molecule serine?



- A. London dispersion forces
- B. Permanent dipole permanent dipole forces
- C. Hydrogen bonding
- D. Covalent bonding

[1 mark]

Question 4

Hexane, C₆H₁₄ and 2,2-dimethylbutane, CH₃C(CH₃)₂CH₂CH₃, are two isomers of one another and have the same M_r of 86.0.

Hexane has a **higher** boiling point than 2,2-dimethylbutane.

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

- A. hexane has a higher boiling point because it is a straight chain molecule
- B. 2,2-dimethylbutane has a lower boiling point as it is a branched molecule
- C. 2,2-dimethylbutane only contains London dispersion forces
- D. hexane contains permanent dipole permanent dipole forces

[1 mark]

Question 5

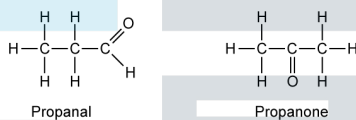
Which of the following substances has the highest melting point?

- A. Mg
- B. NaO
- C. O₂
- D. C (graphite)

[1 mark]

Question 6

Which of the following statements about propanal and propanone are correct?



- I. The strongest type of intermolecular force in both molecules is hydrogen bonding
- II. The strongest type of intermolecular force in both molecules is permanent dipole permanent dipole forces
- III. Both compounds are soluble in water

- A. I and II only
- B. I and III only
- C. II and III only
- D. I, II and III

[1 mark]

Question 7

Which molecule has the **lowest** boiling point?

- A. CH₃CH₂CHO
- B. CH₃CH₂CH₂Cl
- C. CH₃CH₂CH₃
- D. CH₃CH₂COOH

[1 mark]

Question 8

Which of the following species has the highest melting point?

- A. $1s^2 2s^2 2p^6 3s^1$
- B. $1s^2 2s^2 2p^6 3s^2$
- C. $1s^2 2s^2 2p^6 3s^2 3p^1$
- D. $1s^2 2s^2 2p^6 3s^2 3p^2$

[1 mark]

Question 9

Which type of bonding can be described as 'the electrostatic attraction between positive nuclei and electrons and occurs by the sharing of electrons'?

- A. Hydrogen bonding
- B. Ionic bonding
- C. Metallic bonding
- D. Covalent bonding

[1 mark]

Question 10

Which of the following statements about ammonia, NH_3 , is **not** correct?

- A. The lone pair on nitrogen can form a coordinate bond
- B. The bond angle in the NH_3 molecule is 107°
- C. The strongest type of intermolecular force is hydrogen bonding
- D. There are four bonding pairs of electrons in the NH_3 molecule

[1 mark]