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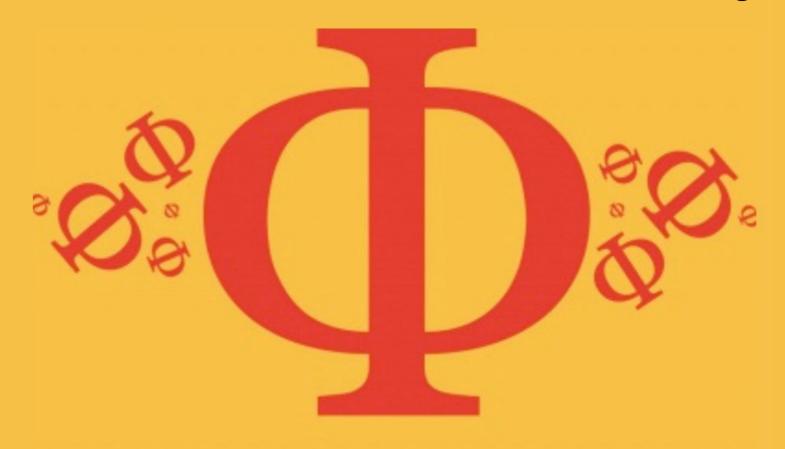
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### **IB Chemistry: SL**

# 4.3 Intermolecular Forces & Metallic Bonding



**CHEMISTRY** 



# 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	Hard

# **EXAM PAPERS PRACTICE**

Time allowed: 20

Score: /10

Percentage: /100



In which of the following processes do hydrogen bonds get broken?

- A. 2HBr (g)  $\rightarrow$  H<sub>2</sub>(g) + Br<sub>2</sub>(g)
- B.  $C_2H_6(I) \to 2C(g) + 6H(g)$
- C.  $H_2(I) \rightarrow H_2(g)$
- D.  $NH_3(I) \rightarrow NH_3(g)$

[1 mark]

#### Question 2

Hydrogen bonding occurs between molecules of propanal, CH₃CH₂CHO, and molecules of liquid Y. Which of the following is most likely to be liquid Y?

- A. CH<sub>3</sub> CO CH<sub>3</sub>
- B. CH₃ OH
- C. CH<sub>3</sub> COCH<sub>3</sub>
- D. CH₃ CHO



# **EXAM PAPERS PRACTICE**

#### **Question 3**

Which of the following metals will have the greatest ability to conduct electricity?

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



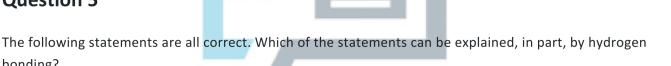
Which of the following statements are correct?

- I. The strongest type of intermolecular force between BF<sub>3</sub> molecules are permanent dipole permanent dipole forces
- II. The strongest type of intermolecular force between HCN molecules are permanent dipole permanent dipole forces
- III. The bond angle in HCN is larger than the bond angle in BF<sub>3</sub>
- A. I and II only
- B. I and III only
- C. II and III only
- D. I, II and III

[1 mark]

#### **Question 5**

bonding?



- I. Ice is less dense than water
- II. Butanone has a lower boiling point than butan-1-ol
- III. At room temperature butanone can mix with water



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



Hydrogen bonding can occur between propanal, CH₃CH₂CHO and which other molecule?

- A. CH₃COOH
- B.  $CH_3CO_2CH_3$
- C. CH₃CH₂F
- D. CH₃COCH₃

[1 mark]

### **Question 7**

Which of the following about dimethylamine, NH(CH<sub>3</sub>)<sub>2</sub>, is correct?

	Bond angle	Strongest type of intermolecular force present
A	109.5°	Permanent dipole permanent dipole forces
В	109.5°	London dispersion forces
С	107°	Hydrogen bonding
D	105°	Hydrogen bonding



The properties of alloys can be explained in terms of metals having

- I. Non-directional bonding
- II. Delocalised electrons
- III. Ions of di erent size
- A. I and II only
- B. I and III only
- C. II and III only
- D. I, II and III

[1 mark]

#### **Question 9**

Which of the following molecules will have the highest boiling point?

- A. CH₃CH₂CHO
- B. CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>
- C. CH<sub>3</sub>CH<sub>2</sub>OCH
- D. CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>F

[1 mark]

### EXAM PAPERS PRACTICE

#### **Question 10**

What is the correct order of boiling points for the following molecules, from lowest to highest?

- A.  $CH_3F < F_2 < CH_3CH_2F < HF$
- B.  $F_2$ <  $CH_3F$ <  $CH_3CH_2F$ < HF
- C.  $F_2$ <  $CH_3CH_2F$ <  $CH_3F$ < HF
- D.  $HF < CH_3CH_2F < CH_3F < F_2$