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IB Chemistry: SL

4.3 Intermolecular Forces & Metallic Bonding

CHEMISTRY

SL

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**

Time allowed: 20

Score: /10

Percentage: /100

Question 1

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

A. $2HBr\ (g) \rightarrow H_2(g) + Br_2(g)$
B. $C_2H_6(l) \rightarrow 2C\ (g) + 6H\ (g)$
C. $H_2(l) \rightarrow H_2(g)$
D. $NH_3(l) \rightarrow NH_3(g)$

[1 mark]

Question 2

Hydrogen bonding occurs between molecules of propanal, CH_3CH_2CHO, and molecules of liquid Y. Which of the following is most likely to be liquid Y?

A. $CH_3\ CO\ CH_3$
B. $CH_3\ OH$
C. $CH_3\ COCH_3$
D. $CH_3\ CHO$

[1 mark]

Question 3

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

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

[1 mark]

Question 4

Which of the following statements are correct?

I. The strongest type of intermolecular force between BF_3 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_3

A. I and II only

B. I and III only

C. II and III only

D. I, II and III

[1 mark]

Question 5

The following statements are all correct. Which of the statements can be explained, in part, by hydrogen 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

[1 mark]

Question 6

Hydrogen bonding can occur between propanal, CH_3CH_2CHO and which other molecule?

A. CH_3COOH
B. $CH_3CO_2CH_3$
C. CH_3CH_2F
D. CH_3COCH_3

[1 mark]

Question 7

Which of the following about dimethylamine, $NH(CH_3)_2$, is correct?

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

[1 mark]

Question 8

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. CH_3CH_2CHO
B. $CH_3CH_2CH_2NH_2$
C. CH_3CH_2OCH
D. $CH_3CH_2CH_2F$

[1 mark]

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. $HF < CH_3CH_2F < C H_3F < F_2$

[1 mark]