

# Intermolecular Forces

## Question Paper

<b>Level</b>	A Level
<b>Subject</b>	Chemistry
<b>Exam Board</b>	Edexcel
<b>Topic</b>	Bonding & Structure
<b>Sub Topic</b>	Intermolecular Forces
<b>Booklet</b>	Question Paper
<b>Paper Type</b>	Open-Response

**Time Allowed:** 8 minutes

**Score:** /6

**Percentage:** /100

**Grade Boundaries:**

A*	A	B	C	D	E	U
>85%	77.5%	70%	62.5%	57.5%	45%	<45%

1 The boiling temperatures of fluorine and two of its compounds are given below.

Substance	F <sub>2</sub>	CH <sub>3</sub> F	HF
T <sub>b</sub> /K	85	195	293

(a) A molecule of F<sub>2</sub> has 18 electrons.

Which intermolecular force depends to a large extent on the number of electrons in the molecule?

(1)

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(b) Calculate the number of electrons in a molecule of CH<sub>3</sub>F.

(1)

(c) Explain why the boiling temperature of CH<sub>3</sub>F is greater than that of F<sub>2</sub>, referring to the intermolecular forces present.

(1)

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(d) Explain why the boiling temperature of HF is the highest in the series.

(2)

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- (e) Explain why the values of the boiling temperatures for  $\text{Cl}_2$ ,  $\text{CH}_3\text{Cl}$  and  $\text{HCl}$  do not follow the same trend as  $\text{F}_2$ ,  $\text{CH}_3\text{F}$  and  $\text{HF}$ .

(1)

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**(Total for Question = 6 marks)**