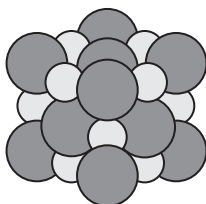
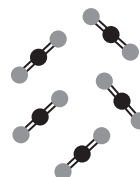


- 5 This question is about the bonding, structure and properties of three different substances, **X**, **Y** and **Z**, shown in the following diagram.

**X****Y****Z**

- (a) Give the letters of the substances that contain covalent bonding.

(1)

- (b) Explain why the melting point of **X** is very different from the melting point of **Z**.

(4)

- (c) Explain why the melting point of **Y** is very high.

(2)

(Total for Question 5 = 7 marks)

Question number	Answer	Mark
5(a)	X and Z (1)	1

Question number	Answer	Mark
5(b)	<p>An explanation that makes reference to the following points:</p> <ul style="list-style-type: none"> • X has a higher melting point than Z (1) • because covalent bonds need to be broken in X (1) • but intermolecular forces (between molecules) need to be overcome in Z (1) • covalent bonds/bonds in X are strong and intermolecular forces/forces in Z are weak (1) 	4

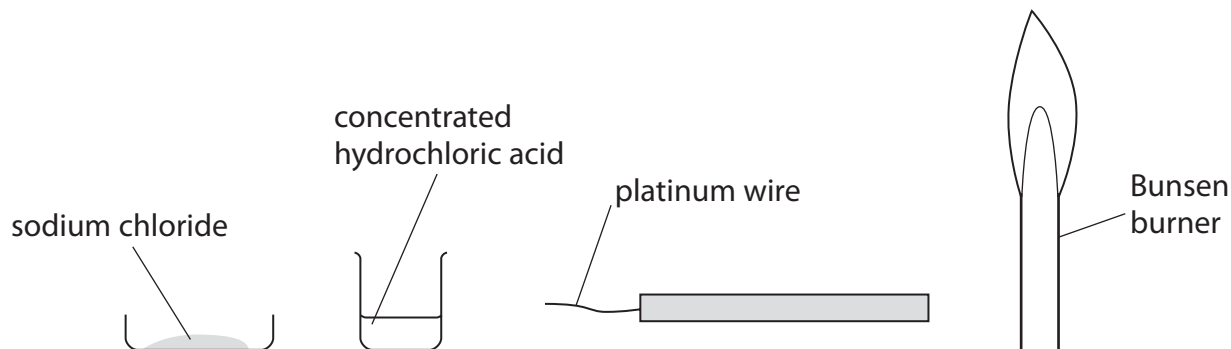
Question number	Answer	Mark
5(c)	<p>An explanation that makes reference to any two linked of the following points:</p> <ul style="list-style-type: none"> • oppositely charged ions (1) • are strongly attracted to each other (1) • so lot of energy needed to overcome the (strong forces of attraction) (1) 	2

Total for Question 5 = 7 marks

2 A student carries out a series of tests on some compounds.

(c) Cations in compounds can be identified using a flame test.

The diagram shows two chemicals and pieces of apparatus that can be used in this test.



Describe how you would use the chemicals and apparatus to show that the sodium ion is present in sodium chloride.

(4)

(Total for Question 2 = 8 marks)