Chemical reactions & Materials

Total mark – 12

Question: 1

2 Limestone is used to make many different materials.

2 (a) Heating limestone produces calcium oxide and carbon dioxide.

Complete the sentences.

2 (a) (i) The main compound in limestone is calcium ..... .

[1 mark]

2 (a) (ii) The reaction to produce calcium oxide from limestone is thermal ..... .

[1 mark]

2 (a) (iii) Calcium hydroxide is produced when calcium oxide reacts with ..... .

[1 mark]

2 (a) (iv) Calcium hydroxide is used to neutralise acids because it is an ..... .

[1 mark]

Question: 2

3 This question is about elements and compounds.

3 (a) In 1869 Mendeleev produced an early version of the periodic table.

Figure 4 shows part of Mendeleev's periodic table.

Figure 4

H						
Li	Be	B	C	N	O	F
Na	Mg	Al	Si	P	S	Cl
K	Ca		Ti	V	Cr	Mn

3 (a) (i) Why did Mendeleev leave gaps in his periodic table?

[1 mark]

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3 (a) (ii) Give **one** reason why the elements Ti, V, Cr and Mn should **not** be where Mendeleev placed them.

[1 mark]

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3 (b) (ii) Bromine reacts with sodium iodide.

The word equation for the reaction is:

bromine + sodium iodide ⟶ sodium bromide + iodine

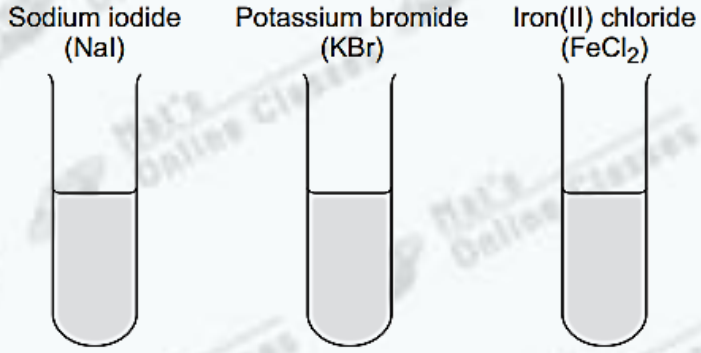
This reaction shows that bromine is more reactive than iodine.

Explain why, in terms of electrons.

[3 marks]

3 (c) **Figure 6** shows test tubes containing solutions of sodium iodide, potassium bromide and iron(II) chloride.

Figure 6



3 (c) (i) A student tested each solution with silver nitrate in the presence of dilute nitric acid.

Write the result for sodium iodide solution in **Table 1**.

[1 mark]

Table 1

	Sodium iodide solution	**Potassium bromide solution**	**Iron(II) chloride solution**
Result of adding silver nitrate		Cream precipitate	White precipitate

3 (c) (ii) The student tested new samples of each solution with sodium hydroxide solution.

Write the result for iron(II) chloride solution in **Table 2**.

[1 mark]

Table 2

	Sodium iodide solution	**Potassium bromide solution**	**Iron(II) chloride solution**
Result of adding sodium hydroxide solution	No precipitate	No precipitate	

3 (d) A flame test is done on a mixture of sodium iodide and potassium bromide.

Why would a flame test **not** show the presence of both sodium ions and potassium ions in the mixture?

[1 mark]

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