

All questions are for both separate science and combined science students

Q1.

This question is about elements in the periodic table.

- (a) Argon has the atomic number 18

Explain why argon does **not** form compounds.

Answer in terms of electrons.

(2)

- (b) Phosphorus (P) is the element below nitrogen in the periodic table.

Predict the formula of the compound formed between phosphorus and hydrogen.

Formula = _____

(1)

- (c) Tellurium is the element with atomic number 52

Predict whether tellurium reacts with metals.

Explain your answer.

Answer in terms of the position of tellurium in the periodic table.

(2)

Barium (Ba) is an element in Group 2 of the periodic table.

Barium reacts with hydrochloric acid.

- (d) Suggest **two** observations that could be made when barium reacts with hydrochloric acid.

1 _____

2 _____

(2)

- (e) Write a balanced symbol equation for the reaction between barium and hydrochloric acid.

_____ + _____ → _____ + _____

(3)

(Total 10 marks)

Q2.

This question is about groups in the periodic table.

The elements in Group 1 become more reactive going down the group.

Rubidium is below potassium in Group 1.

- (a) Rubidium and potassium are added to water.

Predict **one** observation you would see that shows that rubidium is more reactive than potassium.

(1)

- (b) Explain why rubidium is more reactive than potassium.

(3)

- (c) Complete the equation for the reaction of rubidium with water.

You should balance the equation.



(3)

The noble gases are in Group 0.

(d) Which is a correct statement about the noble gases?

Tick (✓) **one** box.

The noble gases all have atoms with eight electrons in the outer shell.

☐

The noble gases have boiling points that increase going down the group.

☐

The noble gases have molecules with two atoms.

☐

The noble gases react with metals to form ionic compounds.

☐

(1)

(e) The table below shows information about the three isotopes of neon.

Mass number	Percentage abundance (%)
20	90.48
21	0.27
22	9.25

Calculate the relative atomic mass (A_r) of neon.

Give your answer to 3 significant figures.

Relative atomic mass (3 significant figures) = _____

(3)

(Total 11 marks)