

23 The ions formed when element X and element Y react together are shown.

- Element X forms X^- ions.
- Element Y forms Y^{2+} ions.

Which row identifies the position of X and of Y in the Periodic Table?

	X	Y
A	Group I	Group VI
B	Group VII	Group II
C	Group VII	Group VI
D	Group I	Group II

24 Which properties decrease down the group of alkali metals?

- 1 melting point
- 2 density
- 3 reactivity

A 1 and 2 **B** 1 only **C** 2 and 3 **D** 3 only

25 Some halide ions are displaced from aqueous potassium halides by halogens.

In which mixtures are the halide ions displaced?

- 1 potassium bromide and chlorine
- 2 potassium bromide and iodine
- 3 potassium iodide and chlorine
- 4 potassium chloride and iodine

A 1 and 3 **B** 1 and 4 **C** 2 and 3 **D** 2 and 4

25 Part of the Periodic Table is shown.

Which element is an inert gas?

A simplified periodic table with 18 columns and 4 rows. The elements are represented by boxes. The boxes are arranged as follows: Row 1: 1 box, 17 boxes, 1 box. Row 2: 2 boxes, 16 boxes, 2 boxes. Row 3: 2 boxes, 16 boxes, 2 boxes. Row 4: 2 boxes, 16 boxes, 2 boxes. The labels A, B, C, and D are placed in the following positions: A is in the 10th column, 1st row. B is in the 17th column, 2nd row. C is in the 18th column, 2nd row. D is in the 16th column, 3rd row.

26 Which row identifies a transition element?

	melting point	density at r.t.p.
A	high	high
B	high	low
C	low	high
D	low	low

5 This question is about metallic compounds.

(a) Insoluble metal salts, such as lead(II) sulfate, are made by precipitation.

When aqueous lead(II) ions react with aqueous sulfate ions, a precipitate of lead(II) sulfate forms.

A sample of pure lead(II) sulfate can be obtained from the precipitate formed.

(i) Write an ionic equation for this precipitation reaction. Include state symbols.

..... [3]

(ii) State the name of an aqueous solution containing lead(II) ions.

..... [1]

(iii) State the name of an aqueous solution containing sulfate ions.

..... [1]

(iv) The lead(II) sulfate precipitate is separated from the rest of the reaction mixture by filtration. The impure lead(II) sulfate remains on the filter paper.

State the general term given to an insoluble substance that remains on the filter paper during filtration.

..... [1]

(v) Describe how the lead(II) sulfate is purified after filtration.

..... [2]

(b) Copper is a transition element.

A list of properties of copper is shown.

- It has good electrical conductivity.
- It has variable oxidation states.
- It forms soluble salts.
- It forms coloured compounds.
- It forms basic oxides.
- It acts as a catalyst.

(i) Give **two** properties from the list that show how copper is similar to metals in Group I of the Periodic Table.

1
2 [2]

(ii) Give **two** properties from the list that show how copper is different from metals in Group I of the Periodic Table.

1
2 [2]

[Total: 12]

6 This question is about the Periodic Table.

(a) State the name given to Group I elements.

..... [1]

(b) State which Group I element is least reactive.

..... [1]

(c) Lithium is in Group I of the Periodic Table.

When lithium is added to water a chemical reaction occurs.

(i) Give **two** observations when lithium is added to water.

1
2 [2]

(ii) Write a symbol equation for this reaction.

..... [2]

(d) Group I elements have lower melting points and lower boiling points than transition elements.

Describe **two other** physical properties of Group I elements that are different from transition elements.

1
2 [2]

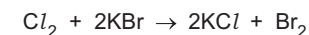
(e) The Group VII elements are known as the halogens.

(i) Give the physical state and colour of chlorine at room temperature and pressure.

state
colour [2]

(ii) When chlorine is passed through aqueous potassium bromide, a displacement reaction occurs.

The equation for the reaction is shown.



Write an ionic equation for the reaction.

..... [2]

The volume of one mole of any gas is 24 dm^3 at room temperature and pressure (r.t.p.).