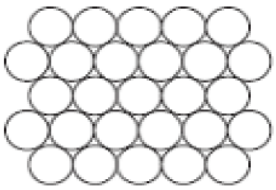
1. Iron is a grey magnetic metal that reacts with hydrochloric acid to produce hydrogen gas. Sulfur is a yellow non-metal that does not react with acids.

Powders of these two elements can be mixed and heated together in a test-tube. The mixture glows red on heating and continues to do this even when removed from the Bunsen burner flame.

The black powder produced after heating the mixture is not magnetic and reacts with hydrochloric acid to give a smelly gas, hydrogen sulfide.

Use these observations to answer the following questions.

a. Pure iron is a soft, metallic *element*.



(i) Why is iron described as an *element*?

.....

.....

b. Give two pieces of evidence that a compound has been formed by heating the powders together.

.....

.....

.....

2.

This question is about chlorine and compounds of chlorine.

(a) Chlorine is an element in Group VII of the Periodic Table.

State the meaning of the term *element*.

.....

.....

(b) State **one** use of chlorine.

.....

(c) Chlorine is an example of diatomic molecule. Define diatomic molecule.

……..

3.

There is a small percentage of noble gases in the air.
The noble gases are unreactive.

Explain why the noble gases are unreactive in terms of their electronic structure.

.....

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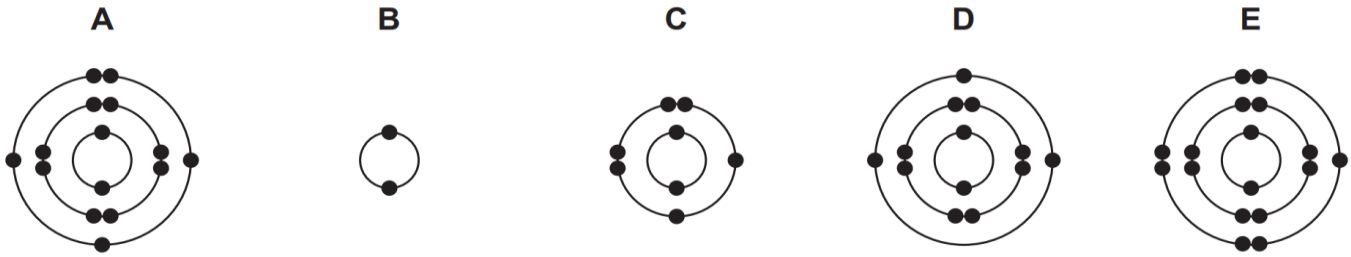
4.

(a) The electronic structures of five atoms, **A**, **B**, **C**, **D** and **E**, are shown.



Answer the following questions about these electronic structures.
Each electronic structure may be used once, more than once or not at all.

State which electronic structure, **A**, **B**, **C**, **D** or **E**, represents:

(i) an atom in Group V of the Periodic Table

.....

(ii) an atom which contains only two shells of electrons

.....

(iii) an atom that forms a stable ion with a charge of 2–

.....

5. You must choose any 3 elements. For each element and write down:

1) it's chemical symbol, proton number, mass number ,metal,non-metal

(check the periodic table)

2) it's state (e.g.,solid,liquid)