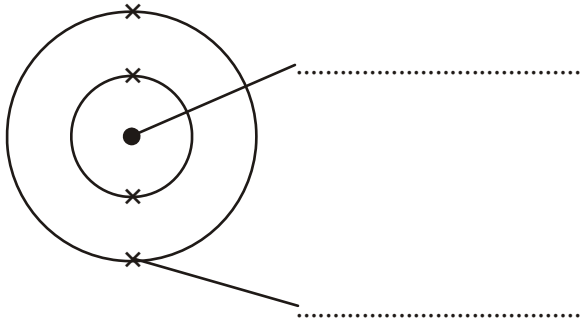
Atoms and the periodic table

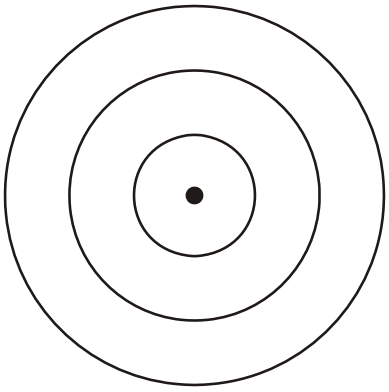
1. (a) The diagram represents an atom of beryllium. Use words from the box to label the diagram.

electron
Ion
isotope
molecule
nucleus



(2)

(b) Use crosses (*x*) to complete the diagram to show the electronic structure of a magnesium atom. The atomic (proton) number of magnesium is 12.



(2)
(Total 4 marks)

2. The diagram shows part of the periodic table.

Group 1	Group 2		Group 3	Group 4	Group 5	Group 6	Group 7	Group 0
23 sodium 11	24 magnesium 12		27 aluminium 13	28 silicon 14	31 phosphorous 15	32 sulphur 16	35 chlorine 17	40 argon 18

Choose from the elements shown in the table:

(a) one metal .....

(1)

(b) a noble gas .....

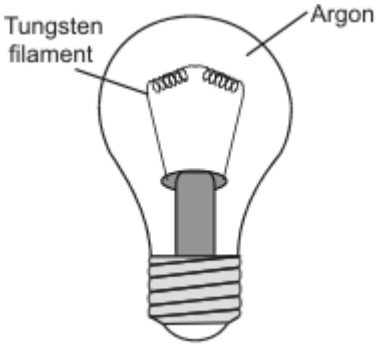
(1)

(c) a coloured gas .....

(1)

(Total 3 marks)

3. The diagram shows an electric light bulb.



When electricity is passed through the tungsten filament it gets very hot and gives out light.

(a) What reaction would take place if the hot tungsten was surrounded by air?

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(1)

(b) State why argon is used in the light bulb. Explain your answer in terms of the electronic structure of an argon atom.

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(3)
(Total 4 marks)