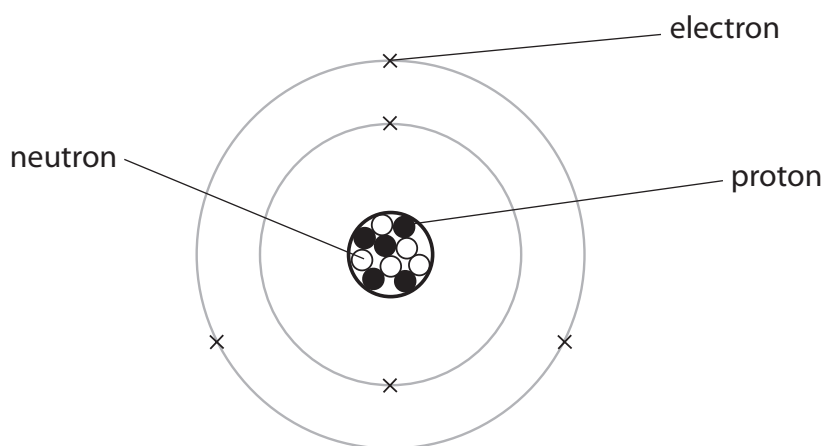


1 Boron exists as two isotopes.

These are boron-10,  $^{10}_5\text{B}$ , and boron-11,  $^{11}_5\text{B}$ .

(a) The diagram shows an atom of the isotope, boron-10.



(i) State the electronic configuration of boron.

(1)

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(ii) Complete the sentence by putting a cross (☒) in the box next to your answer.

In the periodic table, boron is in period

(1)

- A 2
- B 3
- C 5
- D 10

(iii) The table shows the three particles present in atoms and their relative masses and charges.

Complete the table.

(2)

particle	relative mass	relative charge
electron	$\frac{1}{1837}$	
neutron		
proton		+1

\*(b) A sample of boron contains 20% boron-10 and 80% boron-11.

In part (a) you were given the structure of a boron-10 atom.

Describe the structure of a boron-11 atom and explain why, in this sample, boron has a relative atomic mass of 10.8.

(6)

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(c) Mendeleev was a Russian chemist who produced the first version of the periodic table.

Give one similarity and one difference between his version of the periodic table and the periodic table shown on page 2.

(2)

**(Total for Question 1 = 12 marks)**

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