FOUNDATION

3.5 Atomic Structure: 10-minute Pack

AQA 8461 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Choose the correct statement about electrons in atoms.

(a) Select which of the following is true and give a brief reason: **(2)**

A: Electrons are found in the nucleus. B: Electrons orbit the nucleus in shells. C: Electrons have positive charge.

- ☐ A
- ☐ B
- ☐ C

(Total for Question 1 is 2 marks)

---

2 An isotope is an atom of the same element with a different number of neutrons.

(a) State which subatomic particle is different in isotopes of the same element. **(1)**

(Total for Question 2 is 1 mark)

---

3 A neutral atom has equal numbers of protons and electrons.

(a) Explain why a neutral atom has no overall electrical charge. **(2)**

(Total for Question 3 is 2 marks)

© Revision Library | revisionlibrary.co.uk

4 A Geiger counter is used to measure the activity of a small source. The teacher reminds students about safety when working with radioactivity.

(a) Give one safety measure to protect against exposure to a weak classroom source of α radiation. **(1)**

(b) Give one additional safety measure for handling a radioactive source in class. **(1)**

(Total for Question 4 is 2 marks)

---

5 An atom of element X has atomic number 11 and mass number 23.

(a) Calculate the number of protons in the atom. **(1)**

.....

(b) Calculate the number of neutrons in the atom. **(1)**

.....

(Total for Question 5 is 2 marks)

© Revision Library | revisionlibrary.co.uk

Mark scheme · 3.5 Atomic Structure: 10-minute Pack

Question 1

(a) selects B **B1**

(a) gives reason such as: electrons are outside the nucleus in shells or energy levels, oe **B1**

(a) Answer: B; electrons orbit the nucleus in shells outside the nucleus.

Question 2

(a) neutron cao **B1**

(a) Answer: Neutron

Question 3

(a) number of protons equals number of electrons **B1**

(a) positive charges from protons are balanced by negative charges from electrons so charges cancel out, oe **B1**

(a) Answer: Because the number of protons equals the number of electrons, so positive and negative charges balance and cancel out.

Question 4

(a) use tongs or a long handling tool to keep distance from the source, oe **B1**

(a) Answer: Use tongs or a long handling tool to keep distance from the source.

(b) store the source in a shielded container when not in use or minimise time near the source, oe **B1**

(b) Answer: Store the source in a shielded container when not in use.

Question 5

(a) 11 protons cao **B1**

(a) Answer: 11 protons

(b) neutrons = mass number - atomic number = 23 - 11 = 12 **B1**

(b) Answer: 12 neutrons

© Revision Library | revisionlibrary.co.uk