

Atoms, Ions and Isotopes

Questions for GCSE Physics



1. Name the three subatomic particles found in an atom.

2. Where in an atom are **protons** and **neutrons** found?

3. What is the relative charge of:

a) a proton

b) a neutron

c) an electron?

4. What is the relative mass of:

a) a proton

b) a neutron

c) an electron?



5. Which subatomic particle determines which **element** an atom belongs to?

6. Explain why an atom normally has no overall electrical charge.

7. Explain how a neutral atom can become a positive ion.

8. A neutral magnesium atom contains 12 protons.

a) How many electrons does it contain?

b) The atom loses two electrons. How many electrons does it now contain?

c) What is the overall charge of the ion formed?

9. An ion contains 17 protons and 18 electrons. What is its charge?

10. What is meant by the term isotopes?



11. An atom contains 11 protons, 11 electrons and 12 neutrons. What is its:

a) atomic number

b) mass number?

12. Carbon-12 and carbon-14 are isotopes of carbon. State what is **the same** and what is **different** about their nuclei.

13. Chlorine has an atomic number of 17. A chlorine-37 atom gains one electron. State the number of protons, neutrons, and electrons in the resulting ion.

14. Two atoms have the following structures:

Atom A: 19 protons, 20 neutrons, 19 electrons

Atom B: 19 protons, 21 neutrons, 18 electrons

Explain **two ways** in which these atoms are different

15. Write the correct nuclear notation for the two atoms in question 14.
[Hint: Use 'K' for the symbol for potassium.]

