

Chapter: 6.3 (The structure of atoms)

1. Copy and complete the following sentences.

Atoms contain smaller subatomic particles called **electron, proton** and **neutron**.
At the centre of the atom is the **nucleus** which contains the **proton** and **neutron**.

2. a) **Explain why atoms are neutral.**

Ans. Atoms contain the same number of electrons which are negatively charged and protons which are positively charged. Their charges cancel each other. So, atoms are neutral.

- b) **Explain why the nucleus contains most of the mass of the atom.**

Ans. The mass number is the number of protons plus the number of neutrons in an atom. Both of these are present in the nucleus of the atom. So, nucleus contains most of the mass of the atom.

3. a) **What is meant by the atomic number of an atom?**

Ans. The atomic number is the number of proton which is equal to the number of electron.

- b) **What is meant by the mass number of an atom.**

Ans. The mass number is the number of proton plus the number of neutron in an atom.

- c) **Copy and complete the table:**

Atom	He	Cl	N	<u>Ar</u>
Atomic number	2	<u>17</u>	<u>7</u>	18
Mass number	4	<u>35</u>	<u>14</u>	40
Number of protons	<u>2</u>	17	<u>7</u>	<u>18</u>
Number of neutrons	<u>2</u>	18	7	<u>22</u>
Number of electrons	<u>2</u>	<u>17</u>	<u>7</u>	18
Electronic structure	<u>2</u>	<u>2,8,7</u>	<u>2,5</u>	<u>2,8,8</u>

4. Look at the table:

Atom	Atomic number	Electronic structure	Mass number
Potassium	19	2,8,8,1	39
Aluminium	13	2,8,1	27
Hydrogen	1	1	1
Calcium	20	2,8,8,2	40
Sulphur	16	2,8,6	32

- a) Which atom has 13 electrons?-----Aluminium(Al)
- b) Which atom has the electronic structure 2,8,6? ----- Sulphur(S)
- c) Which atom has no neutrons?-----Hydrogen(H)
- d) Which two atoms have the same number of neutrons?
-----Potassium(K) & Calcium(Ca)
- e) Which atoms have equal numbers of neutrons and protons?
-----Calcium(Ca) & Sulphur(S)
- f) Which atoms have equal numbers of electrons and protons?
-----All the above.

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