

GCSE Chemistry A (Gateway Science)

J248/01 Chemistry A C1-C3 and C7 (Foundation Tier)

Question Set 12

1 Look at Table 1.1.

It shows information about some atoms and ions.

Particle	Atomic number	Mass number	Number of protons	Number of neutrons	Number of electrons	Electronic structure
A	11	23	11	12	11	2.8.1
B	9	19	9	10	9	2.7
C	17	37	17	20	17	2.8.7
D	13	27	13	14	10	2.8

Table 1.1

(a) Complete the missing information in Table 1.1. [4]

(b) Particle A is a metal atom, particle D is an ion.

Explain why.

[2]

[Particle A is sodium atom because it's in Group 1/
alkali metals and it does not have a full outer shell

[Particle D is an aluminium ion because the number of electrons
is less than number of protons to have a full outer shell
(lost 3 electrons)

(c) Element C has the electronic structure 2.8.7.

What does this electronic structure tell you about the position of element C
in the periodic table?

Explain your answer.

[4]

It has 3 electronic shells thus it's in period 3 and it has
7 electrons in the outer shell meaning it's in Group 7

(d) Complete the table below to give information about protons, neutrons and electrons.

	Charge	Mass in atomic mass units
proton	positive	1
neutron	neutral	1
electron	negative	1/1840

[2]

(e) Rutherford was a scientist who helped to develop the atomic model.

State how Rutherford's work contributed to the development of the atomic model.

He found that the atom consists mostly of empty space with heavy mass in the centre of nucleus which is positively charged.

Total Marks for Question Set 12: 13

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