2 Atoms are made of electrons, neutrons and protons.

(a) Complete Table 2.1.

Table 2.1

particle	relative charge	relative mass
electron		$\frac{1}{1840}$
neutron	0	
proton		

[2]

(b) Atoms of the same element are known as isotopes.

$^{39}_{19}K$ and $^{41}_{19}K$ are isotopes of potassium.

(i) Complete Table 2.2 to show the number of electrons, neutrons and protons in one atom or ion of these isotopes.

Table 2.2

isotope	electrons	neutrons	protons
$^{39}_{19}K$			
$^{41}_{19}K^{+}$			

[3]

(ii) Table 2.3 shows the relative masses and the percentage abundances of the two isotopes in a sample of potassium.

Table 2.3

relative mass of isotope	percentage abundance of isotope
39	90
41	10

Calculate the relative atomic mass of this sample of potassium to **one** decimal place.

relative atomic mass = ... [2]

(iii) An isotope of aluminium has a nucleon number of 27.

Aluminium has a relative atomic mass of 27.

State what conclusion can be made from this information.

.....

..... [1]

(c) A calcium atom has the electronic configuration of 2,8,8,2.

Give the formula of one atom and one negative ion that has the same electronic configuration as Ca^{2+}.

- atom .....
- negative ion .....

[2]

[Total: 10]