## AQA - Atomic structure - GCSE Combined Science Physics

1.

June/2021/Pap	per_1F/No.6	
0 6	A radioactive source emits alpha, beta and gamma radiation.	
0 6.1	An alpha particle is the same as a helium nucleus.	
	How many times bigger is the radius of a helium atom than the radius of an alpha particle?	
	Tick (✓) one box.	1 mark]
	Less than 100 times bigger	
	Exactly 5000 times bigger	
	More than 10 000 times bigger	
0 6.2	Alpha particles can ionise atoms in the air.	
	What happens to an atom when it is ionised by an alpha particle?	marks]
	Tick (✓) <b>two</b> boxes.	markoj
	A neutron in the atom becomes a proton.	
	The atom becomes a positive ion.	
	The atom gains a neutron.	
	The atom gains a proton.	
	The atom loses an electron.	

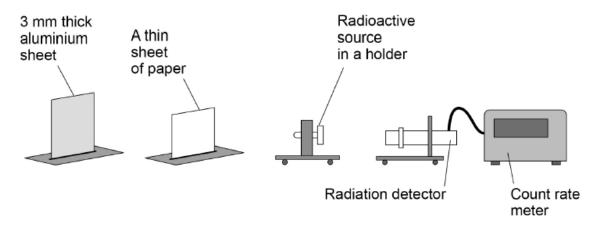
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0 6 . 3	A spark detector is a device that can be used to detect alpha radiation.	
	A spark detector works by alpha particles ionising atoms in the air near a wire	mesh.
	A large potential difference creates a spark when the air near the wire mesh is ionised.	
	Suggest why a spark detector <b>cannot</b> detect beta radiation.	[1 mark]

0 6. 4 A teacher wants to demonstrate that the radioactive source emits alpha, beta and gamma radiation.

Figure 11 shows the equipment the teacher has.

Figure 11



Describe a method the teacher could use.	[6 marks]

2.

June/2021/Pap		
0 2	A radioactive source emits alpha, beta and gan	nma radiation.
0 2.1	An alpha particle is the same as a helium nucle	us.
	How many times bigger is the radius of a heliur alpha particle?	n atom than the radius of an
	Tick (✓) one box.	[1 mark]
	Less than 100 times bigger	
	Exactly 5000 times bigger	
	More than 10 000 times bigger	
0 2.2	Alpha particles can ionise atoms in the air.	
	What happens to an atom when it is ionised by	an alpha particle? [2 marks]
	Tick (✓) <b>two</b> boxes.	[z marko]
	A neutron in the atom becomes a proton.	
	The atom becomes a positive ion.	
	The atom gains a neutron.	
	The atom gains a proton.	
	The atom loses an electron	

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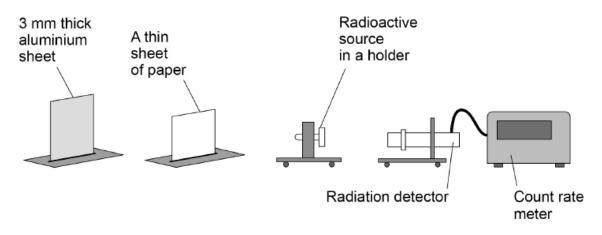
0 2 . 3	A spark detector is a device that can be used to detect alpha radiation.	
	A spark detector works by alpha particles ionising atoms in the air near a wire	mesh.
	A large potential difference creates a spark when the air near the wire mesh is ionised.	
	Suggest why a spark detector cannot detect beta radiation.	[1 mark]

0 2 . 4

A teacher wants to demonstrate that the radioactive source emits alpha, beta and gamma radiation.

Figure 3 shows the equipment the teacher has.





Describe a method the teacher could use.	[6 marks]