

AQA - Atomic structure – GCSE Combined Science Physics

1. June/2021/Paper_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?

[1 mark]Tick (✓) **one** box.

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?

[2 marks]Tick (✓) **two** boxes.

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.

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 **cannot** detect beta radiation.

[1 mark]

2. June/2021/Paper_1H/No.2

0 2

A radioactive source emits alpha, beta and gamma radiation.

0 2 . 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?

[1 mark]

Tick (✓) **one** box.

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0 2 . 2

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What happens to an atom when it is ionised by an alpha particle?

[2 marks]

Tick (✓) **two** boxes.

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0 2 . 3 A spark detector is a device that can be used to detect alpha radiation.

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Suggest why a spark detector **cannot** detect beta radiation.

[1 mark]
