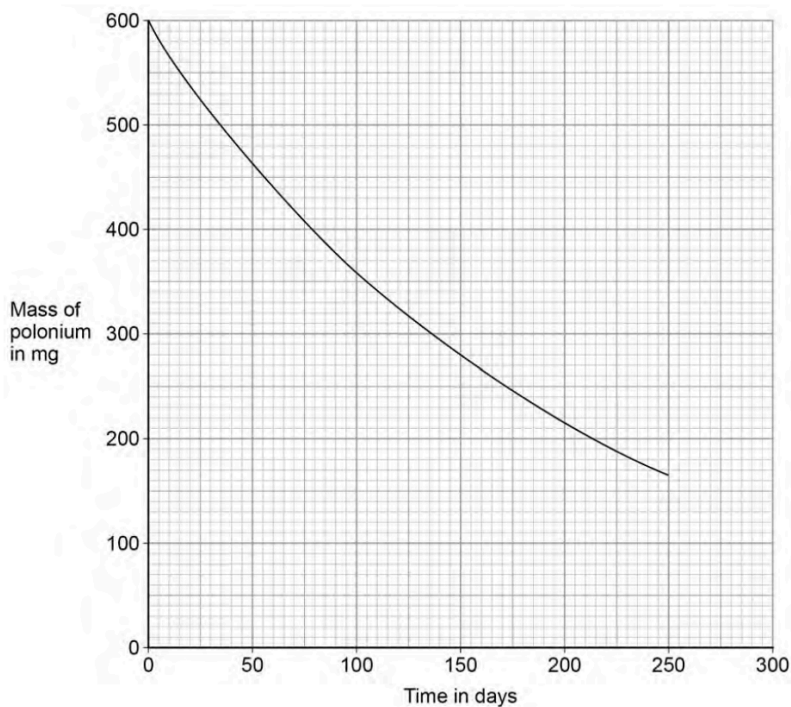


Q1.(2019)

a)

Figure 3 shows how the mass of a sample of polonium-210 changes with time.

Figure 3



b)

Estimate the mass of polonium-210 remaining after 300 days.

[1 mark]

Mass = _____ mg

c)

Nuclear radiation can cause ionisation.

Complete the sentences.

Choose answers from the box.

[2 marks]

a negative	an electron	a neutron	a positive	a proton	a zero
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An atom becomes an ion when it loses _____.

The resulting ion has _____ charge.

Q2.(2021)

All radioactive elements have a half-life.

What is meant by 'half-life'?

[1 mark]

Tick (✓) **one** box.

The time it takes for all the nuclei in a radioactive sample to split in half.

☐

The time it takes for the count rate of a radioactive sample to halve.

☐

The time it takes for the radiation to travel half of its range in air.

☐

Q3.(2023)

a)

Different radioactive isotopes have different half-lives.

What does 'half-life' mean?

[1 mark]

Tick (✓) **one** box.

Half the time taken for all of the nuclei in a sample to decay.

☐

The time taken for half the nuclei in a sample to decay.

☐

The time taken for one nucleus to split in half.

☐

b)

Table 2 shows the half-life of some different isotopes of carbon.

Table 2

Isotope	Half-life in seconds
Carbon-15	2.45
Carbon-16	0.75
Carbon-17	0.19
Carbon-18	0.09

Which isotope is the least stable?

[1 mark]

Tick (✓) **one** box.

Carbon-15

☐

Carbon-16

☐

Carbon-17

☐

Carbon-18

☐