

# Radioactivity

## Question Paper

Course	CIE IGCSE Physics
Section	5. Nuclear Physics
Topic	Radioactivity
Difficulty	Easy

**Time Allowed**      10

**Score**                /5

**Percentage**        /100

### Question 1

Radioactive materials are usually stored in containers lined with metal. This is done to reduce the amount of radiation being emitted, to protect people nearby.

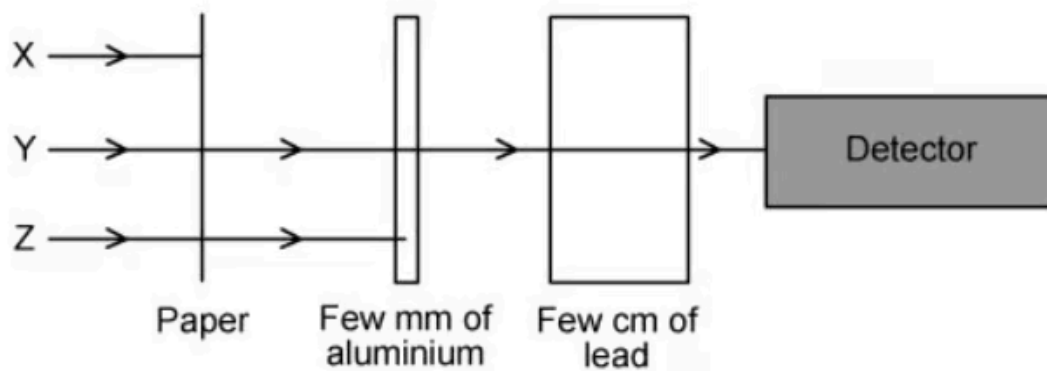
What type of metal is used for this purpose?

- A. Lead
- B. Aluminium
- C. Steel
- D. Copper

[1 mark]

## Question 2

A student has three radioactive sources **X**, **Y** and **Z**. They devised the following experiment to determine what type of radiation each source is emitting.



The student found that the radiation from **X** was stopped by a sheet of paper, **Y** was partially stopped by a few cm of lead and **Z** was stopped by a few mm of aluminium.

Which of the following correctly identifies each type of radiation

	<b>X</b>	<b>Y</b>	<b>Z</b>
<b>A</b>	$\alpha$ -particle	$\beta$ -particle	$\gamma$ -ray
<b>B</b>	$\alpha$ -particle	$\gamma$ -ray	$\beta$ -particle
<b>C</b>	$\gamma$ -ray	$\beta$ -particle	$\alpha$ -particle
<b>D</b>	$\beta$ -particle	$\gamma$ -ray	$\alpha$ -particle

[1 mark]

### Question 3

Which statement is **not** a method used to minimise the risk caused by working with radioactive sources.

- A. Store the sources in lead-lined boxes.
- B. Minimise the amount of time spent handling the sources.
- C. Keep the source cold.
- D. Keep the source as far away as possible, for example, using a pair of tongs.

[1 mark]

### Question 4

Which statement about  $\alpha$ -particles is correct?

- A.  $\alpha$ -particles consist of two protons and two electrons.
- B.  $\alpha$ -particles are the most penetrating type of radiation.
- C.  $\alpha$ -particles are a type of electromagnetic radiation.
- D.  $\alpha$ -particles are highly ionising.

[1 mark]

### Question 5

There are three main types of radiation which may be emitted during radioactive decay:  $\alpha$ -particles,  $\beta$ -particles and  $\gamma$ -rays.

Which of the following statements about these types of emissions is **true**?

- A.  $\alpha$ -particles are the only type of radiation to have a charge
- B.  $\gamma$ -rays are stopped by a sheet of paper
- C.  $\beta$ -particles have the greatest ionising effect
- D.  $\gamma$ -rays are the most penetrating

[1 mark]