

Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic : 6_ Radioactivity

Name of the Student: _____

Max. Marks : 18 Marks

Time : 18 Minutes

Q1.

Alpha, beta and gamma are types of ionising radiation.

(a) State **two** ways in which gamma radiation is different from alpha radiation.

(2)

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(b) (i) Complete the sentence by putting a cross (■) in the box next to your answer.

A beta particle is emitted by

(1)

- ☐ **A** an alpha particle
- ☐ **B** a fusion particle
- ☐ **C** a gamma ray
- ☐ **D** an unstable nucleus

(ii) Complete the sentence by putting a cross (■) in the box next to your answer.

A beta particle has an identical charge to

(1)

- ☐ **A** an alpha particle
- ☐ **B** an electron
- ☐ **C** a neutron
- ☐ **D** a nucleus

(c) Explain how an atom becomes ionised by radiation.

(2)

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*(d) The removable lens of this old camera has four pieces of glass in it.



removable lens

One of the pieces of glass is radioactive. Its surface is covered with a thin layer of magnesium fluoride.

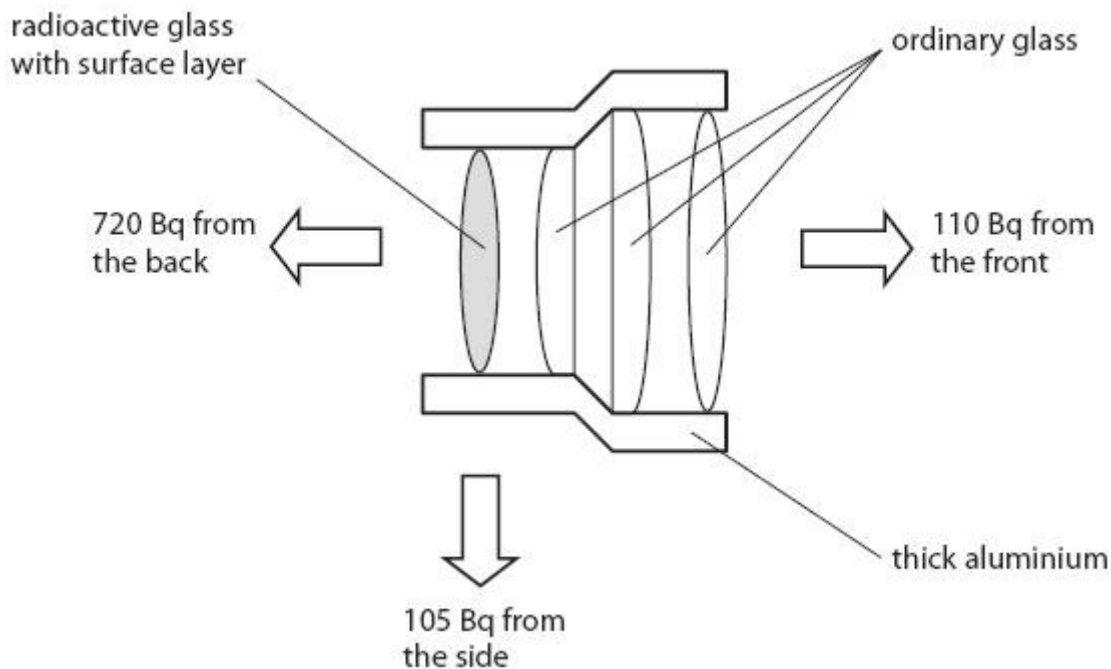
Radioactive isotopes in the glass emit alpha, beta and gamma radiation in all directions.

A scientist removes the lens from the camera. She measures the radiation coming from the back, front and side of the lens.

The amount of radiation is different in each direction.

No alpha radiation is detected.

The readings are shown on the diagram.



Explain why the readings in the three directions are different.

(6)

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(Total for Question is 12 marks)

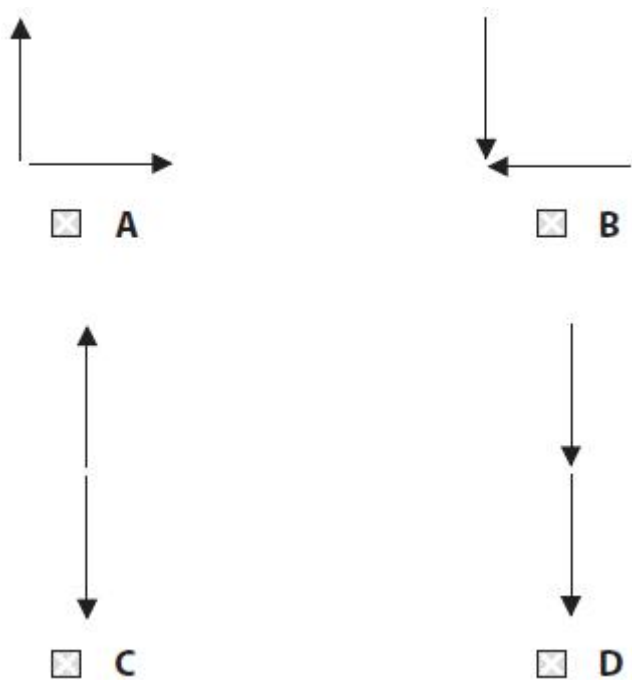
Q2.

Some radioactive isotopes emit positrons.
Positrons are used to make gamma rays.
When a positron annihilates an electron, two gamma rays are produced.

(i) Which diagram shows the directions of the two gamma rays produced?

Put a cross (☒) in the box next to your answer.

(1)



(ii) Explain how charge is conserved when an electron annihilates a positron.

(3)

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(iii) Explain how mass and energy are conserved when an electron annihilates a positron.

(2)

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