

GCSE Physics A (Gateway)

J249/04 Physics A P5-P8 and P9 (Higher Tier)

Question Set 17

1

The table below shows information on radioactive isotopes.

Radioactive isotope	Type of radiation	Half-life	Penetration through human flesh
A	alpha	300 years	2 mm
B	beta	7 hours	60 mm
C	gamma	7 hours	> 10 m
D	alpha	9 seconds	2 mm
E	gamma	3 years	> 10 m

(a) A doctor injects a patient with isotope **C** to track blood flow through the body.

Use the information to suggest why the doctor uses isotope **C**.

[1]

(b) A doctor implants radioactive isotope **A** into a patient to treat a localised cancer which is a few mm in size. She intends to remove the isotope in a few weeks.

Use the data to suggest **two** reasons why the doctor uses isotope **A**.

[2]

(c) A doctor wants to irradiate a tumour using gamma rays.

Why does the activity of the source need to be checked before it is used on a patient?

[2]

Total Marks for Question Set 17: 5

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