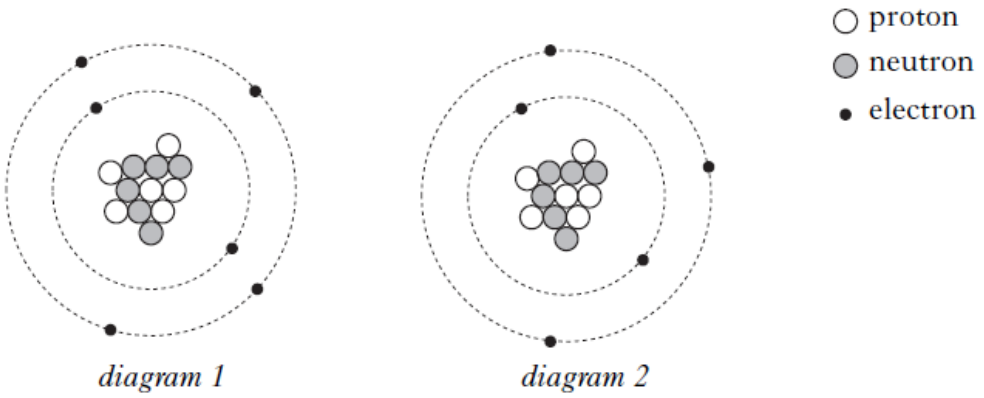
Radiation 1

1. A teacher is demonstrating absorption of alpha, beta and gamma radiations.

(a) The teacher explains that when these radiations are absorbed they may cause ionisation in the absorbing material.

(i) (A) State which of the two diagrams below represents an ionised atom. 1

(B) Explain your answer. 1



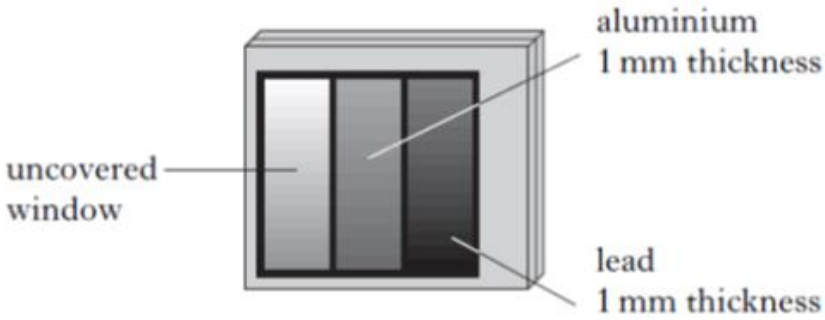
(ii) State which type of radiation: alpha, beta or gamma causes most ionization. 1

(b) The radioactive sources are stored in lead-lined boxes. This is a safety precaution to minimise exposure of students and teacher to radiations from the sources. State one further safety precaution that should be taken by the teacher when handling the radioactive sources. 1

(c) Radioactive materials are used in hospitals.

(i) State one medical use of radiation where the radiation is used to destroy cells. 1

(ii) A hospital physicist is working with some radioactive materials. The physicist wears a badge containing photographic film. Light cannot reach the film.



When developed, it is found that the film behind both the uncovered window and the window covered with 1 mm thick aluminium have turned black.

State which type of radiation could cause the film in only these areas to turn black. 1