

Atomic Structure and Isotopes MCQ

Q:1)A This question is about the structure of atoms and radioactive decay. 5A Where is an electron found in the basic structure of an atom?

- 1)in orbit around the nucleus
- 2)on its own in the nucleus
- 3)with neutrons in the nucleus
- 4)with protons in the nucleus

B Which type of radiation consists of helium nuclei?

- 1)alpha radiation
- 2)beta radiation
- 3)delta radiation
- 4)gamma radiation

C Which one of the following statements is true for alpha radiation?

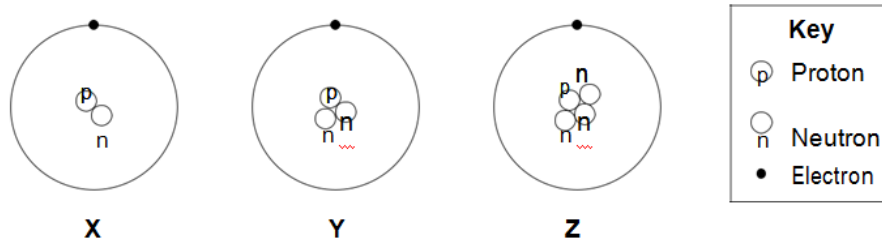
- 1)It is emitted by all radioactive substances.
- 2)It is identical to an electron.
- 3)It is not deflected by an electric field.
- 4)It is deflected by a magnetic field.

D The table shows the half-lives of four radioactive sources which all emit the same type of radiation.

Which source is the most suitable for use as a medical tracer?

Source	Half-life
1	6 hours
2	6 weeks
3	6 months
4	6 years

Q:2 The diagram shows three atoms, X, Y and Z.



A Which of these atoms are isotopes of the same element?

- 1) X, Y and Z
- 2) X and Y only
- 3) X and Z only
- 4) Y and Z only

B Some substances are radioactive.

What does this mean?

- 1) Radio signals make these substances emit radiation.
- 2) These substances can take part in chemical reactions.
- 3) These substances emit radiation from the nuclei of their atoms.
- 4) These substances glow in the dark.

C Some substances emit beta radiation. What is beta radiation?

- 1) a helium nucleus
- 2) an electron from outside the nucleus
- 3) an electron from inside the nucleus
- 4) an electromagnetic wave

D The warning label is from a smoke detector.

Warning!

This device contains a source that emits alpha radiation. Do not take this device apart.

What is the reason for this warning?

- 1) Alpha radiation is very dangerous if the source gets inside the body.
- 2) Alpha radiation can travel very long distances in the air.
- 3) Alpha radiation has the longest half-life.
- 4) Alpha radiation is the most penetrating of all radiations.

TOTAL MARKS=8