Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic: GCSE Triple Science Atomic Structure (High Demand Questions)

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Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Q1.

Scientists developed new models of the atom as new particles were discovered.

(a) Draw **one** line from each particle to the year it was discovered.

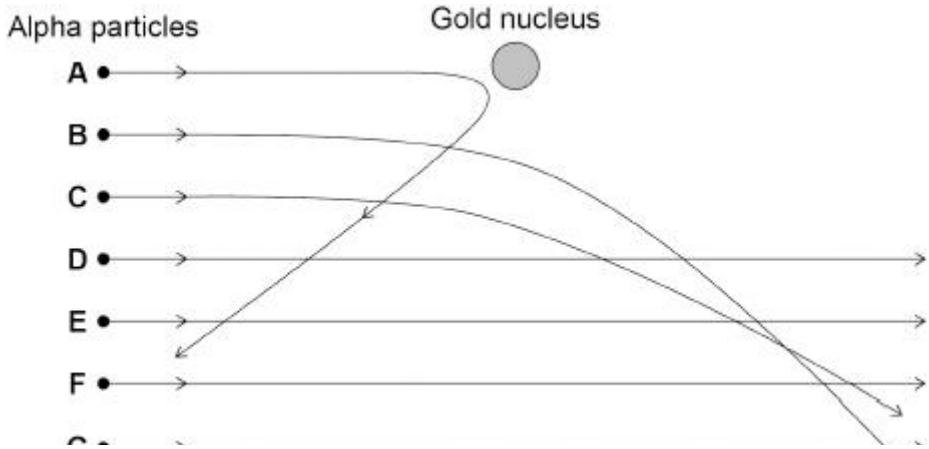
Particle	Year of discovery
Electron	1897
Neutron	1911
Nucleus	1920
Proton	1932

(2)

The nucleus was discovered using an alpha particle scattering experiment.

Alpha particles were directed at a sheet of gold foil.

The figure below shows the paths taken by seven alpha particles, **A**, **B**, **C**, **D**, **E**, **F** and **G**.



(b) Explain why alpha particle **A** takes the path shown in the figure above.

_____

_____

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(2)

(c) Explain why the path of alpha particle **B** is more tightly curved than the path of alpha particle **C**.

_____

_____

_____

_____

(2)

(d) What can be deduced about the atom from the paths taken by alpha particles **D**, **E**, **F** and **G** in the figure above?

Tick (✓) **one** box.

The atom contains a nucleus. ☐

The atom contains protons, neutrons and electrons. ☐

The atom is mostly empty space. ☐

(1)

(e) How is the Bohr model of the atom different from the nuclear model of the atom?

_____

_____

_____

(1)

(f) Explain how an electron can move up and down between energy levels in an atom.

_____

_____

_____

_____

(2)

(Total 10 marks)

Q2.

Alpha particles, beta particles and gamma rays are types of nuclear radiation.

(a) What does an alpha particle consist of?

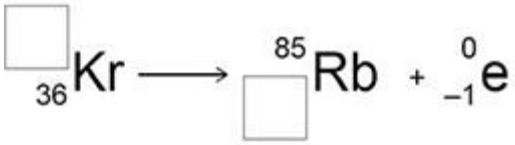
_____

_____

(1)

(b) A krypton (Kr) nucleus decays into a rubidium (Rb) nucleus by emitting a beta particle.

Complete the nuclear equation for this decay by writing the missing number in each box.



(2)

(c) Internal contamination of the human body means radioactive material is inside the human body.

Explain how the risk from internal contamination is different to the risk from external irradiation by a source of alpha radiation.

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(5)

(Total 8 marks)