Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic: Atomic Structure (Standard Demand)

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Name of the Student:_____
Max. Marks : 21 Marks **Time : 21 Minutes**

Mark Schemes

Q1.

beta

1

alpha absorbed by paper

allow beta <u>and</u> alpha
second mark is linked to first

1

or beta absorbed by aluminium allow beta can penetrate paper
or gamma would affect all of film

i.e. cannot obtain second mark unless first mark is correct

[2]

Q2.

(a) (i) cannot penetrate aluminium

allow can only pass through air / paper too weak is neutral

1

(ii) gamma rays not affected (by aluminium)

allow <u>all</u> / <u>most</u> (gamma rays) to pass through
too strong is neutral
danger is neutral

1

(b) (i) (nuclei) unstable

1

(ii) causes harm / damage to body / cells

allow radiation sickness

1

detail e.g., causes mutations / causes cancer / damages DNA / damages chromosomes

allow two effects for 2 marks

1

[5]

Q3.

(a) protons

1

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protons

accept electrons

1

neutrons

1

(b) protons

reject mass

1

[4]

Q4.

2 weeks

if answer is incorrect 2 gains two marks weeks gains one mark
half of 68 or 34 gains one mark / allow working shown on graph

[3]

Q5.

(a) (i) alpha particles cannot penetrate covering

do not credit any answer not relating to film badge or its case

1

(ii) film gets fogged **or** blackened

accept film gets exposed
*do not credit film changes colour **or** goes white **or** blotchy*

1

(b) (i) any **one** from

may cause cancer may damage cells **or** cell nucleii causes mutations
changes DNA

*accept (causes) burns **or** kills cells*

1

(ii) any **two** from

treating cancers
tracers in body
sterilising instruments **or** bandages

accept two descriptions of named treatments, eg thyroid check and circulation monitoring

*accept is a source of X-rays, eg for dentistry **or** taking X-rays of bones*

2

(c) calculation that 1000 is 3 half lives on

8000 → 4000 → 2000 → 1000

1

time elapsed is 3 × half life = 31.8 hr

award both marks for 31.8 hr or 1 day 7.8 hr with no working shown

1

[7]

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