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

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

Mark Schemes

Q1.

(a) 10 000

1

(b) **Increase**

absorb electromagnetic radiation

1

Decrease

emit electromagnetic radiation

1

(c) atomic number is the number of protons

1

mass number is the number of protons and neutrons

1

(d) **Level 2 (3–4 marks):**
A clear comparison, with logical structure.

Level 1 (1–2 marks):
Fragmented points, with no logical structure.

0 marks:
No relevant content

Indicative content

Beta decay
- Atomic number increases by one
- When a neutron decays into a proton

Alpha decay
- Atomic number decreases by two
- When an alpha particle is emitted

Comparison

Both change number of protons (hence new element / transmutation)
Beta decay increases atomic number and alpha decay decreases (explicit)

NB No credit is given for different number of protons = new element.

4

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Q2.

(a) (i) splitting of a(n atomic) nucleus

do not accept splitting an atom

1

(ii) Neutron

1

(b) (i) nuclei have the same charge

or

nuclei are positive

accept protons have the same charge

1

(ii) (main sequence) star

accept Sun or any correctly named star

accept red (super) giant

1

(c) (i) any **two** from:

- easy to obtain / extract
- available in (very) large amounts
- releases more energy (per kg)

*do **not** accept figures only*

- produces little / no radioactive waste.

naturally occurring is insufficient

seawater is renewable is insufficient

less cost is insufficient

2

(ii) any **one** from:

- makes another source of energy available
- increases supply of electricity
- able to meet global demand
- less environmental damage
- reduces amount of other fuels used.

accept any sensible suggestion

accept a specific example

accept a specific example

1

(d) 12

*allow **1** mark for obtaining 3 half-lives*

2

[9]