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

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Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Mark Schemes

Q1.

(a) electron

1

atom

1

nucleus

1

orbit

1

(b) positive charge is provided by protons

1

(every atom of the same element contain the) same number of protons

*do **not** accept same number of protons and neutrons*

ignore reference to electrons

1

(c) $v = 300\,000\,000 \times \left(\frac{7}{100}\right)$

allow any correct method of determining 7% of 300 000 000

1

v = 21 000 000 (m/s)

allow 2.1 × 10^7 (m/s)

1

*an answer of 21 000 000 scores **2** marks*

(d) r = 6 × 2.5 × 10^{-11}

allow a ratio in the range of 5.7−6.3 or measurements that would give this range, correctly substituted

1

r = 1.5 × 10^{-10} (m)

allow 1.4 × 10^{-10} to 1.6 × 10^{-10}

*their ratio × 2.5 × 10^{-11} correctly calculated scores **1** mark*

1

*an answer in the range 1.4 × 10^{-10} to 1.6 × 10^{-10} scores **2** marks*

[10]

Q2.

(a) horizontal line drawn from 92 000 Bq

allow 90 000–94 000

1

1600 years

allow 1500–1700

1

(b) only (119) years have passed

1

activity has not dropped by much

1

(c)

Level 3: Relevant points (reasons/causes) are identified, given in detail and logically linked to form a clear account.	5-6
Level 2: Relevant points (reasons/causes) are identified, and there are attempts at logically linking. The resulting account is not fully clear.	3-4
Level 1: Points are identified and stated simply, but their relevance is not clear and there is no attempt at logical linking.	1-2
No relevant content	0
Indicative content **properties** • alpha is the least penetrating • alpha is the most ionising • alpha has least range in air • beta is the second most penetrating • beta is the second most ionising • beta has the second longest range in air • gamma is the most penetrating • gamma is the least ionising • gamma has the greatest range in air **hazard** (linked to correct property) • short-range alpha most dangerous • mid-range beta most dangerous • long range gamma most dangerous	

6

[10]