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

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Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Mark Schemes

Q1.

(a) 2 charged particles and 2 neutral particles

1

(b) it is the type of radiation with a negative charge

1

(c) it has a very long range in air

1

(d) risk / activity associated with iodine-131 has decreased by a large amount

1

because of short half-life

allow many half-lives have passed
allow half-life is only 8 days
2nd marking point dependent on 1st marking point

1

risk / activity associated with caesium-137 will not have decreased by much

allow activity has halved

1

because of long half-life

allow only one half-life has passed
4th marking point dependent on 3rd marking point

1

(e) 5 half-lives

allow any correct method
e.g. ½ × ½ × ½ × ½ × ½ = 1/32

1

5 × 30 = 150

1

1986 + 150 = 2136

1

any calculation using a value of 137 scores zero
*an answer of 2136 scores **3** marks*

[10]

Q2.

(a) electromagnetic radiation from the <u>nucleus</u>

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'electromagnetic radiation' is insufficient

1

(b) (Gamma is the most penetrating) so a large proportion of the emitted radiation will leave the body

1

more easily detected outside the body

1

(c) (average) time it takes for the number of nuclei of the isotope in a sample to halve

or

(average) time it takes for the count rate from a sample containing the isotope to fall to half its initial level

1

(d) initially there is a high level of hazard.

1

level of hazard drops to a low level quickly

1

answer must imply short period of time

(activity initially high) due to short half-life

or

(drops to safe level quickly) due to short half-life

1

(e) it is exposed to ionising radiation

1

(f) does not become radioactive

1

[9]

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