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

Merit Minds
www.merit-minds.com
Exam Preparation and Free Resources

Name of the Student:_____
Max. Marks : 24 Marks **Time : 24 Minutes**

Mark Schemes

Q1.

(a) *nucleus positive charge / protons in nucleus electrons / negative charges orbit nucleus*
each for 1 mark
3

(b) (i) *positive dough repels positive alpha particles* ***or*** *2 positive charges repel forces small*
each for 1 mark
2

(ii) *large force needed + ves in plum pudding spread out – may appear in (i)*

positive charge must be concentrated / in nucleus
(ignore references to electrons)
for 1 mark each
3

(c) *1, 0*
X,–l (X = negligible / very small/(1/1840) (1/2000),but not nothing)
each row for 1 mark
2

(d) (i) *4*
for 1 mark
1

(ii) *B and C have the same number of protons / atomic number but different number of neutrons / mass number*
each for 1 mark
3

[14]

Q2.

(a) (i) *beta and gamma (any order)*
for one mark
1

(ii) *gamma*
for one mark
1

(b) (i) *particles / atoms / molecules become charged / gain / lose electrons*

for one mark

1

(ii) *e.g. to kill cancer cells (allow any use of alpha, beta or gamma or X^- radiation)*

for one mark

1

(c) (i) *time taken for no. of atoms / no. of nuclei / mass of U238 / activity to halve – **not** radioactivity*
or
time taken for count rate to halve

for one mark

1

(ii) *atoms with unstable nuclei which emit radiation*
(not definition of isotope but isotope which is radioactive gets 1 mark)

for 1 mark each

2

(d) (i) *1 / 4 accept 25% or 0.25*

for one mark

1

(ii) *2 × half life or 2 × 4500 million years (independent of (i))*
gains 1 mark
but

9000 million years ecf only if answer to (i) is $\frac{1}{2}, \frac{1}{8}, \frac{1}{16},$ *etc.*

gains 2 marks

2

[10]