

Name of the Student: _____

Max. Marks : 20 Marks

Time : 20 Minutes

Mark Schemes

Q1.

- (a) (i) (atoms with the) same number of protons

*allow same atomic number**or same proton number*

1

- (atoms with) different number of neutrons

allow different mass number

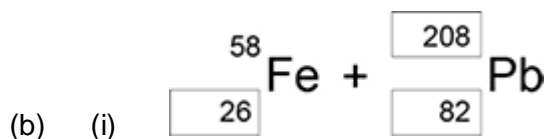
1

- (ii) 82

1

- (iii) 124

1

*1 mark for each correct box*

3

- (ii) (a) neutron

1

- (iii)
- 4.0×10^{-4}
- (s)

or

0.0004

$$3.00 \times 10^8 \times 0.1 = 12\,000 / t$$

gains 1 mark

2

- (iv) particles need to travel a large distance

1

equipment would have to be very long

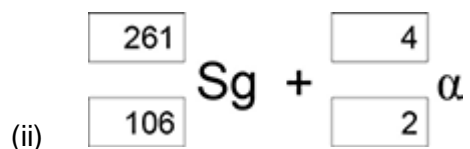
1

with circular paths long distances can be accommodated in a smaller space

1

(c) (i) the average time for the number of nuclei to halve 1

the time for count rate to halve 1



1 mark if top boxes total = 265

***and** bottom boxes total = 108*

1 mark for 4 and 2 for alpha

2

(d) (i) 3 plotted points 1
 $\pm \frac{1}{2}$ small square

best line through points 1

(ii) 190–205 (pm) 1
or correct from student's line

[20]