

Name of the Student: _____

Max. Marks : 21 Marks

Time : 21 Minutes

Mark Schemes

Q1.(a) radiotherapy 1(b) a neutron 1
 energy
energy and gamma rays can score in reverse order 1
gamma rays 1(c) An alpha particle is the same as a helium nucleus. 1
 (d) 24 000 (years)
allow an answer between 24 000 and 24 500 (years) inclusive 1

 (e) 24 000 (years)
or
 their (d) 1

 (f) Any **one** from:
 • irradiation
 • cancer
 • genetic damage
 • mutations to DNA / genes
 • radiation sickness / poisoning 1
[8]**Q2.**
 (a)
$${}_{84}^{210}\text{Po} \rightarrow {}_{82}^{206}\text{X} + {}_2^4\text{He}$$
 1
(b) Alpha radiation is highly ionising 1

(c) Change in mass = 460 – 280

allow reading between 460 and 465
allow reading between 278 and 282

1

Change in mass = 180 (mg)

allow an answer between 178 and 187 inclusive for 2 marks

1

(d) 130 (mg)

allow an answer between 126 and 150 (mg) inclusive

1

(e) an electron

in this order only

1

a positive

1

[7]

Q3.

(a) A

1

(b) C

1

(c) repels

1

increases

1

increases

1

in this order only

(d) another scientist repeats the experiment and
gets the same results

1

[6]