Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Mark Schemes

Q1.

(a) Alpha – two protons and two neutrons

1

Beta – electron from the nucleus

1

Gamma – electromagnetic radiation

1

(b) Gamma

Beta

Alpha

*allow **1** mark for 1 or 2 correct*

2

(c) any **two** from:

- (radioactive) source not pointed at students
- (radioactive) source outside the box for minimum time necessary
- safety glasses **or** eye protection **or** do not look at source
- gloves
- (radioactive) source held away from body
- (radioactive) source held with tongs / forceps

accept any other sensible and practical suggestion

2

(d) half-life = 80 s

1

counts / s after 200 s = 71

accept an answer of 70

1

(e) very small amount of radiation emitted

accept similar / same level as background radiation

1

[10]

Q2.

(a) inside the Sun

1

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(b) fusion

1

(c) energy

1

[3]

Q3.

(a) neutrons

1

(b) generate electricity

accept produce electricity
accept heat water
accept produce steam
turns turbines is insufficient

1

(c) (i) a neutron

1

(ii) two particles **X** released from the uranium-235

1

uranium-235 shown splitting into two fragments
or
each particle **X** shown colliding with a uranium-235 and producing 2 further particles **X**

one uranium-235 shown splitting is sufficient, provided no contradiction shown

1

[5]

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