

Name of the Student: _____

Max. Marks : 20 Marks

Time : 20 Minutes

Mark Schemes

Q1.

- (a) D 1
- (b) Any **one** from:
- mutation (of genes/DNA/chromosomes)
allow can damage OR destroy genes/DNA/chromosomes
ignore damage/destroy cells/tissues/organs
ignore mutates cells
 - cancer/tumour
 - cell death
allow kills cells 1
- (c) the risk of harm is lower from the X-ray 1
- by a factor of 60 1
- (d) 0.0060 sieverts 1
- (e) $\frac{0.1}{2.5} \times 100$ 1
- 4 (%) 1
- allow 0.04 for 1 mark* 1
- [7]**

Q2.

- (a) B 1
- (b) electrical heating 1
- (c) orange
- allow a correct answer indicated in the box provided the answer space is blank*

- (d) becomes (more) red
allow changes from mainly orange to mainly red

1

- (e) the independent
allow a correct answer indicated in the box provided the answer space is blank

1

- (f) pour (hot) water into the (hollow metal) cube

1

point the IR detector at each / a side and take a reading
allow point the IR detector at the cube and take a reading
allow IR detector touching the surface and take a reading
allow take the temperature for take a reading

1

keep the detector the same distance from each surface

1

- (g) 0.1°C

1

- (h) one bar drawn to 68.0 (°C)
ignore the position of the bars on the x-axis

1

one bar drawn to 28.0 (°C)

1

tallest bar labelled Matt black and shortest bar labelled Shiny silver

1

- (i) any **one** from:
- (matt) black is the best emitter
 - shiny silver is the worst emitter
- allow matt white and shiny black are (almost) the same at emitting*
allow black is a good emitter
allow silver is a poor emitter
allow an answer in terms of highest / lowest temperature
ignore any reference to absorption / reflection

1

[13]