

## Mark schemes

**Q1.**

- |     |   |   |
|-----|---|---|
| (a) | ionising radiation  | 1 |
|     | viruses   | 1 |
| (b) | mitosis   | 1 |
| (c) | grow  |   |
|     | <i>must be in this order</i>  | 1 |
|     | replicate   | 1 |
| (d) | 40%   | 1 |
| (e) | chromosomes are pulled to each end of the cell                                      | 1 |
| (f) | (cell) membrane   | 1 |
| (g) | $\frac{50}{800}$  |   |
|     | <i>allow conversion to <math>\mu\text{m}</math> at any stage in the calculation</i> | 1 |
|     | 0.0625 (mm)   | 1 |
|     | 62.5 ( $\mu\text{m}$ )  |   |
|     | <i>allow correct conversion from student's incorrect calculation</i>                | 1 |
| (h) | cells   |   |
|     | <i>must be in this order</i>  | 1 |
|     | people  | 1 |
| (i) | placebo   |   |
|     | <i>allow placebo effect</i>   |   |
|     | <i>ignore examples and descriptions of placebos</i>                                 |   |

**Q2.**

- (a)  $\frac{1}{4}$  1
- (b) 10 1
- (c) grows 1
- replicates 1
- divides 1
- must be in this order*
- (d) C 1
- (e) 10% 1
- (f) circulatory system 1
- (g) cardiovascular disease / CVD  
*allow heart attack*
- or**
- (coronary) heart disease / CHD  
*allow any correctly named heart condition e.g.  
arrhythmia, hole in the heart*
- (h) any **one** from: 1
- unethical  
*allow examples of unethical such as destroying a  
(potential) life*
  - (against) religious / cultural / personal beliefs  
*allow against God's will  
ignore religion unqualified*
  - the method is not (fully) tested  
*allow the method might not work  
allow may cause side effects*
  - risk of infection
  - (heart cells) may be rejected

**[10]**