

- M1.** (a) liver 1
- (b) insulin  
*do not accept glucagon* 1
- (c) kidney 1
- (d) to replace water / ions / salt 1
- (that is) lost in sweat 1
- [5]**

- M2.** (a) (i) kidney 1
- (ii) bladder 1
- (iii) liver 1
- (iv) lung(s) 1
- (v) skin 1
- (b) (i) 3000  
*allow 2970 to 3030*  
*correct answer gains 2 marks with or without working*  
*if answer incorrect allow 1 mark for evidence of  $1550 + 450 + 1000$  (allow tolerance of  $+ \text{ or } - \frac{1}{2}$  square on each)* 2
- (ii) 1600  
*allow 1570 to 1630* 1
- (iii) 1400  
*allow (b)(i) – (b)(ii)* 1
- (iv) correct plot from (b)(iii)  
*tolerance  $\frac{1}{2}$  square ignore width* 1

- (v) cells swell / overhydrated /  
damaged  
*accept poisoned (by urea)*

1  
[11]

- M3.** (a) (i) water 1
- (ii) small 1
- (iii) 3.15 1
- (b) (i) 21 000 1
- (ii) 2 years 1
- (iii) prevent rejection 1

**[6]**

- M4.** (a) pancreas  
*apply list principle* 1
- (b) (i) protein  
*apply list principle* 1
- (ii) any **one** from:
- (controlling / changing) diet  
*accept sugar(y foods) / named eg  
ignore references to starch / fat / protein / fibre*
  - exercise  
*accept example, eg go for a run*
  - pancreas transplant  
*accept named drug eg metformin* 1
- (c) (i) increase  
*ignore reference to women* 1
- then fall 1
- relevant data quote (for male)  
*eg max at ages 65–74 or starts at 10 (per thousand) or max at 130 (per thousand) or ends at 120 (per thousand)  
accept a difference between any pairs of numbers in data set  
accept quotes from scale eg '130' or '130 per thousand' but **not** '130 thousand'; to within accuracy of +/- 2 (per thousand)* 1
- (ii) (between 0 and 64) more females (than males) **or** less males (than females)

*ignore numbers*  
*allow eg females more diabetic than males*

1

(over 65) more males (than females) or less females (than males)  
*allow eg males more diabetic than females*

1

[8]

M5. (a) (i) skin 1

(ii) kidneys  
*accept kidney* 1

(iii) lungs  
*accept lung* 1

(b) (i) multiply temperature by number of students at that temperature and add them up  
*allow (36.8 5) + (36.9 3) + (37.0 6) + (37.1 7) + (37.2 3)*  
*allow 888* 1

divide by number of students  
*allow divide by 24* 1

(ii) 10 / ten 1

(iii) so enzymes work (well)  
*ignore death / overheating / hypothermia*  
*allow body reactions work (well)* 1

[7]

**M6.(a)** brain

*in correct order only*

1

blood

1

sweat

1

(b) (i) A

1

(ii) to replace ions lost (in sweat)

*accept salts*

*allow named examples, eg. prevent cramps*

1

(iii) any **one** from:

- there is too much glucose / sugar in the sports drink
- they shouldn't have too much glucose / blood sugar
- it would cause their blood glucose / sugar to rise (too high)

1

**[6]**



- M7.**
- (a) (i) **B** 1
  - (ii) **D** 1
  - (iii) **C** 1
- 
- (b) (i) insulin 1
  - (ii) pancreas 1
- [5]**