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 + or – ½ 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 ½ 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 <u>enzymes</u> work (well)

ignore death / overheating / hypothermia

allow body <u>reactions</u> 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]