

Mark schemes

1	(a)	liver	1	
	(b)	insulin		
		<i>do not accept glucagon</i>	1	
	(c)	kidney	1	
	(d)	to replace water / ions / salt (that is) lost in sweat	1	
			[5]	
2	(a)	(i)	2400 cm ³	1
		(ii)	1400 (cm ³)	
			<i>allow 2 marks for ecf of correct answer to [answer given in (a)(i) – 1000]</i>	
			<i>allow 1 mark for 2400 – (600 + 400) or equivalent with no or incorrect answer</i>	
			<i>allow 1 mark for ecf of answer given in (a)(i) – 1000 or equivalent with no or incorrect answer</i>	
				2
	(b)	(i)	sweat(ing) <i>allow evaporation</i> <i>allow perspiration</i>	1
	(ii)	any one from: <ul style="list-style-type: none">• for cooling• to maintain body temperature	1	
(c)	(i)	More water was lost through the skin.	1	
	(ii)	decrease	1	
			[7]	
3	(a)	(i)	receptor cells	1
		(ii)	eye(s) <i>accept retina</i>	1

- (b) (i) any **one** from:
- gender / sex
 - quality of eyesight
eg wearing glasses
 - eg of factor that might affect reaction times
eg alcohol consumption / distractions / tiredness / health / time of day / amount of practice (at this test)
do not allow time / age
- 1
- (ii) 182
allow 182.0
- 1
- (iii) Any anomalies can be identified.
- 1
- (iv) reaction time (too) long **or** reactions (too) slow
- 1
- allow reaction time (too) slow*
*allow examples of data quoted **or** derived from the table, eg (mean) reaction time for 90 year olds is 162 ms longer than for 75 year olds*
- (so) more likely to have / cause an accident
- 1

[7]

4

- (a) (i) The person started running a race.
- 1
- (ii) 2300
- 1
- (iii) drinking (water / sports drink)
or
through eating
- 1
- (b) (i) brain
- 1
- (ii) receptors
- 1
- (c) cools us down
allow evaporates
- 1

[6]

- 5** (a) (i) any **one** from:
- glucose
 - oxygen
 - carbon dioxide
 - urea
 - water
- allow hormones*
- allow named example of a product of digestion*
- 1
- (ii) (cardiac) muscle
- allow muscular*
- 1
- (b) (i) **B**
- 1
- (ii) **D** atrium / atria
- ignore references to left or right*
- 1
- E** ventricle(s)
- ignore references to left or right*
- 1
- (c) (i) a vein
- 1
- (ii) an artery
- 1
- (iii) keeps artery open / wider
- allow ecf from part cii*
- 1
- (so) blood / oxygen can pass through (to the heart muscle)
- 1
- [9]**

- 6** (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]

7

(a) (i) (37C is the same as human) body temperature

1

(ii) any **one** from:

- urea
- glucose
- sodium

ignore water

1

(iii) (as they are) small enough to pass through (the membrane)

allow because there is a high concentration in the fake blood and a low concentration in the water (so will diffuse across)

1

(iv) glucose

1

(b) any **two** from:

- don't have to go to hospital **or** done at home rather than hospital
- less effect on lifestyle / can be mobile
- always filtering urea out

continuous is insufficient

- don't need a medical professional (to do it for you)

allow takes a shorter time

allow does not have to be connected to blood vessels

ignore 'less painful'

2

[6]

8

(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]