

My Question Paper

Question	Maximum Mark	Mark Awarded
1	8	
2	6	
3	10	
4	5	
Total Mark		

1.

The list below describes processes involved in the control of blood glucose but they are in the wrong order.

1. the hormone enters the bloodstream
2. the pancreas detects the rise
3. blood glucose level rises
4. the glycogen is stored
5. the pancreas releases insulin
6. the liver turns excess glucose into glycogen

(a) Write down the numbers of the processes above in the right order to complete the sequence correctly. Two have been done for you. [3]

3 6

(b) State the name of the substance in urine which shows a person may have diabetes. [1]

.....

(c) The table below shows the percentage of people in Wales with diabetes between 2006 and 2010.

Year	Percentage of people in Wales with diabetes (%)
2006	4.1
2007	4.2
2008	4.4
2009	4.6
2010	4.9

(i) Calculate the increase in diabetes between 2006 and 2010. [1]

.....%

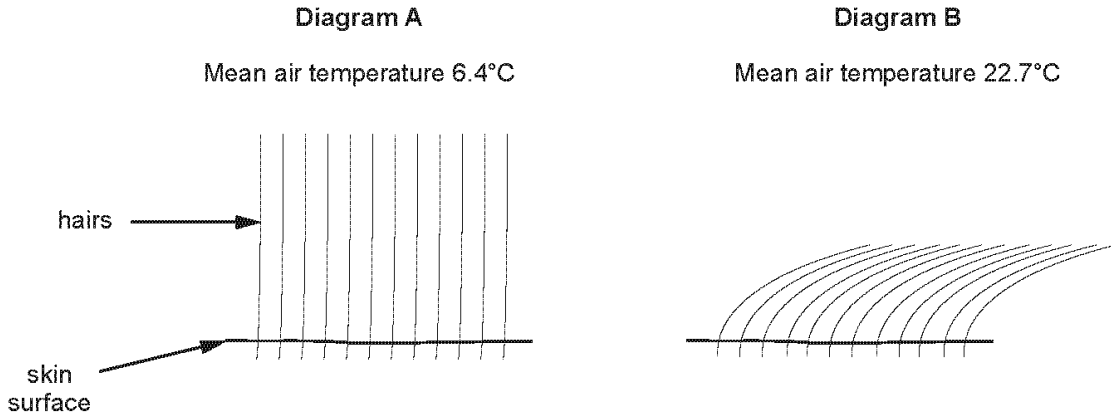
(ii) Most of the increase in diabetes is due to a rise in Type 2 diabetes. One doctor working with diabetics in South Wales has called for a tax on chocolate.

How could a person's lifestyle possibly lead to Type 2 diabetes? [3]

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.....
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.....
.....

2.

The diagram below shows the hairs on the surface of the skin of a cat at different air temperatures.



(a) Name the structures in the skin that raise each hair to the position shown in Diagram A. [1]

.....

(b) Explain why the skin in Diagram A loses less heat to the air than the skin in Diagram B. [3]

.....
.....
.....
.....
.....
.....

(c) State two *other* ways in which the skin reduces heat loss from the body. [2]

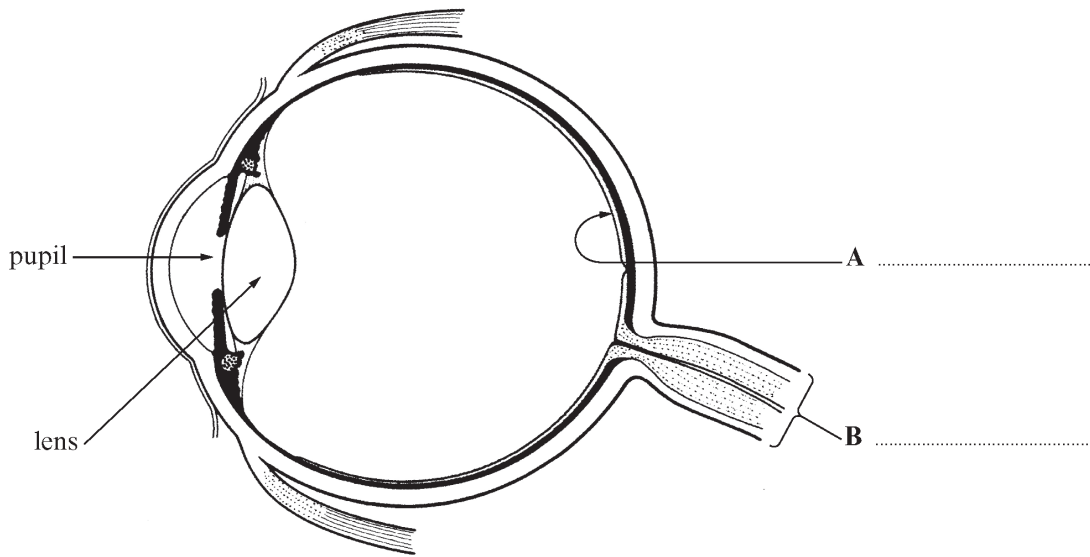
- I
- II

6

3.

(a) The diagram below shows the structure of the eye.
Complete labels **A** and **B**.

[2]

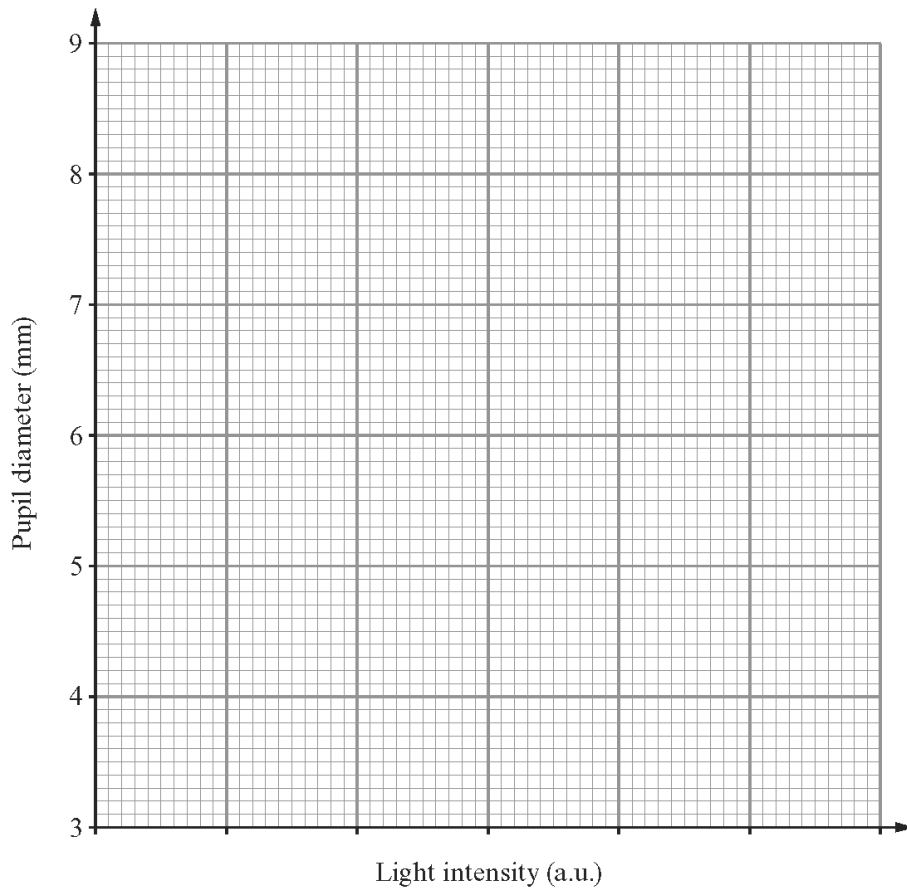


(b) Scientists investigated how the diameter of the pupil of the eye changed in different light intensities. The results are shown below.

light intensity (a.u.)	pupil diameter (mm)
0	8.0
5	8.0
10	7.1
15	6.3
20	5.4
25	4.5

(i) Complete the line graph opposite for these results by:

- I. choosing the scale on the axis for light intensity; [1]
- II. plotting the points; [2]
- III. drawing a line, with a ruler, to join the plots. [1]



(ii) From this graph

I. Describe what happens to the diameter of the pupil as the intensity of light increases. [1]

.....

II. State the pupil diameter at a light intensity of 17 units. [1]

..... mm

(c) The pupil changes in diameter because of a nervous response which happens very quickly and automatically.

(i) Name this type of response. [1]

.....

(ii) What is the purpose of this type of response? [1]

.....

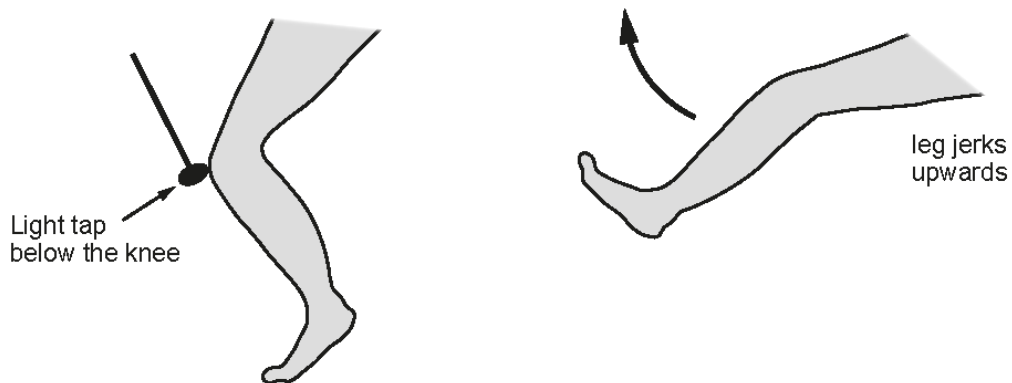
10

4.

(a) Complete the sentence about the human nervous system. [2]

The central nervous system consists of the and

(b) The diagram below shows the knee jerk response, which is a reflex action.



(i) Apart from being very fast, state **one other** feature of **all** reflex actions. [1]

.....

(ii) Give **one other** reflex action which occurs in the human body and state its purpose. [2]

.....
.....
.....

5

Marking Scheme

1.

Question	Marking details	Marks Available
Q.3 (a)	(3) 2 5 1 (6) 4;;; All 4 correct = 3marks 2/3 correct = 2 marks 1 correct = 1 mark	[3]
(b)	<u>glucose</u> ; NOT sugar	[1]
(c) (i)	0.8;	[1]
(ii)	Reference {eating/ take in / ingest/ consume} too much fat/ too much fat in diet; Reference {eating/ take in / ingest/ consume} too much sugar/ carbohydrates; NOT carbs (Alternative if first two not awarded) <u>eat</u> too much/ too many <u>calories/ energy</u> ; NOT too much chocolate Sedentary/ lack of exercise/ not enough sport;	[3]
	Question Total	[8]

2.

Question	Marking details	Marks Available
10/3	(a) <u>Erector muscle</u> ;	1
	(b) 1. Hairs {erect/raised/ stand up/ stick up/ are lifted/ pulled up/ straight up/ up}; 2. Trap <u>thicker</u> layer of air/ more air trapped; NOT trap layer of warm air (can be neutral) 3. Which is {an insulator/ poor conductor}/ which lets less heat pass out/ which insulates/ harder for heat to escape; NOT no heat passes out 3 rd mark only awarded if 2 nd awarded ACCEPT REVERSE ARGUMENT	3
	(c) Any two from: 1. Vasoconstriction/ {capillaries/ blood vessels} {narrow/ constrict/ thinner}/ diameter gets smaller; NOT contract/ get smaller/ blood vessels moving up and/or down 2. shivering; {reduced/ no} sweating/ less sweat {produced/ secreted};	2
	Question10/3 Total	[6]

3.

Question	Marking details	Marks Available
5 (a)	Retina; <u>Optic</u> nerve;	2
(b) (i)	I suitable scale; 0 at origin, linear scale II all plots correct; $\frac{1}{2}$ small square tolerance 1 error = 1 mark, 2 errors = 0 marks Extrapolation (treat as plotting error – 1) III line quality; Must use a ruler through centre of plots	1 2 1
(ii)	I (level then steady) decrease/ gets smaller; II 5.9 (from graph); allow ecf from graph	1 1
(c) (i)	Reflex;	1
(ii)	Protective/ protection/ prevents damage/ prevent hurting the body;	1
Question 5 Total		[10]

4.	Question	Marking details	Marks Available										
3	(a)	Either order Brain; Spinal cord; NOT spine	2										
	(b)	(i) Automatic/ involuntary/ without thought; <i>NOT choose to do it/ protective</i>	1										
	(ii)	<table border="1"> <thead> <tr> <th>Name</th> <th>Purpose</th> </tr> </thead> <tbody> <tr> <td>Blink;</td> <td>protection of eye;</td> </tr> <tr> <td>Pupil diameter change;</td> <td>Regulating/admitting (appropriate level) of light to the eye;</td> </tr> <tr> <td>Withdrawal/ pulling away (in context);</td> <td>prevents damage/ harm to body part;</td> </tr> <tr> <td>Sneezing;</td> <td>Expel/ remove substances from nose</td> </tr> </tbody> </table>	Name	Purpose	Blink;	protection of eye;	Pupil diameter change;	Regulating/admitting (appropriate level) of light to the eye;	Withdrawal/ pulling away (in context);	prevents damage/ harm to body part;	Sneezing;	Expel/ remove substances from nose	2
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Blink;	protection of eye;												
Pupil diameter change;	Regulating/admitting (appropriate level) of light to the eye;												
Withdrawal/ pulling away (in context);	prevents damage/ harm to body part;												
Sneezing;	Expel/ remove substances from nose												
		NOT cough/ choke											
		Question 3 Total	[5]										