Candidate Name	Centre Number	Candidate Number
		0

GCSE

235/01

SCIENCE
FOUNDATION TIER
BIOLOGY 1

P.M. TUESDAY, 7 June 2011

45 minutes

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1	**7**	
2	**7**	
3	**7**	
4	**7**	
5	**7**	
6	**5**	
7	**7**	
8	**3**	
Total	**50**	

0235 010001

ADDITIONAL MATERIALS

In addition to this paper you may require a calculator and a ruler.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet.

INFORMATION FOR CANDIDATES

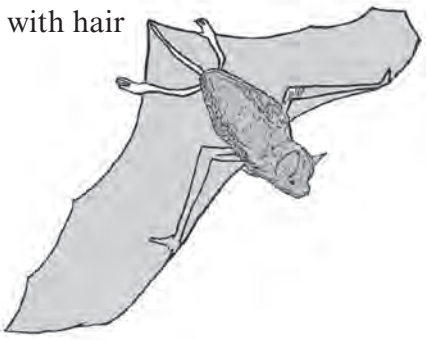
The number of marks is given in brackets at the end of each question or part-question.

You are reminded of the necessity for good English and orderly presentation in your answers.

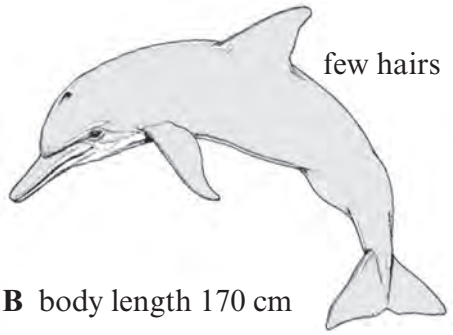
Answer **all** *questions.*

1. The drawings below show six mammals (not drawn to scale).

Body covered with hair

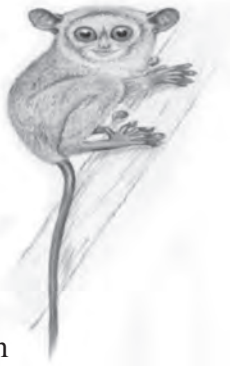


A body length 12 cm



B body length 170 cm

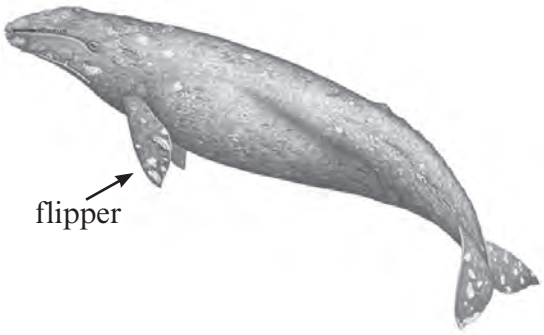
hair on body



C body length 8 cm

D body length 45 cm

few hairs



E body length 1400 cm

F body length 50 cm

Use **the information** opposite to answer the questions.

(a) State **one** feature which is present in all these animals. [1]

.....

(b) (i) Complete the table by adding letters **A - F** to put these animals into their correct groups. [3]

Scientific group	Body features	A-F
Primates	Body length 5 cm - 180 cm eyes face forward has fingers	
Chiroptera	Body length 5 cm - 50 cm eyes at side of head has wings	
Cetacea	Body length above 150 cm eyes at side of head has flippers	

(ii) Animals such as **A** are usually known as bats. What name would scientists use for these animals? [1]

.....

(c) Give **one** body feature, shown in the drawing, which would help animal **F** in its life high up in trees and state how this feature would be useful. [1]

Feature .....

How feature is useful .....

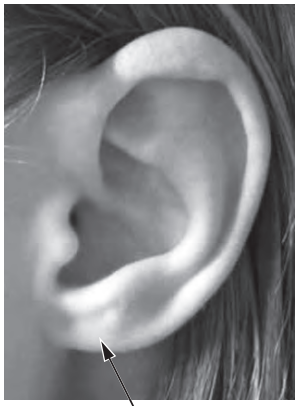
.....

(d) Animal **C** is only active during the night. From the drawing, give **one** feature which helps it to search for food. [1]

.....

2. There are two types of ear lobes in humans as shown below.

free ear lobe



attached ear lobe

Students investigated variation in humans.

- They asked 6 people how tall they were.
- They looked at their ears to see if they had free or attached earlobes.
- All the people were 25 year old females.

The results are shown in the table.

Person	Height (cm)	Ear lobes
1	160	free
2	154	attached
3	174	free
4	163	free
5	152	attached
6	170	free

(a) From **this information only**.

(i) What is the difference in height between the shortest and the tallest person? Show your working. [1]

Answer ..... cm

(ii) The students wanted their investigation to be scientific.

I. State **one** way in which their investigation was a fair test. [1]

.....

II. How could they make their results more reliable? [1]

.....

(iii) Complete the table below by adding **ear lobes** and **height** as examples. [1]

	Continuous variation	Discontinuous variation
Examples	.....	.....

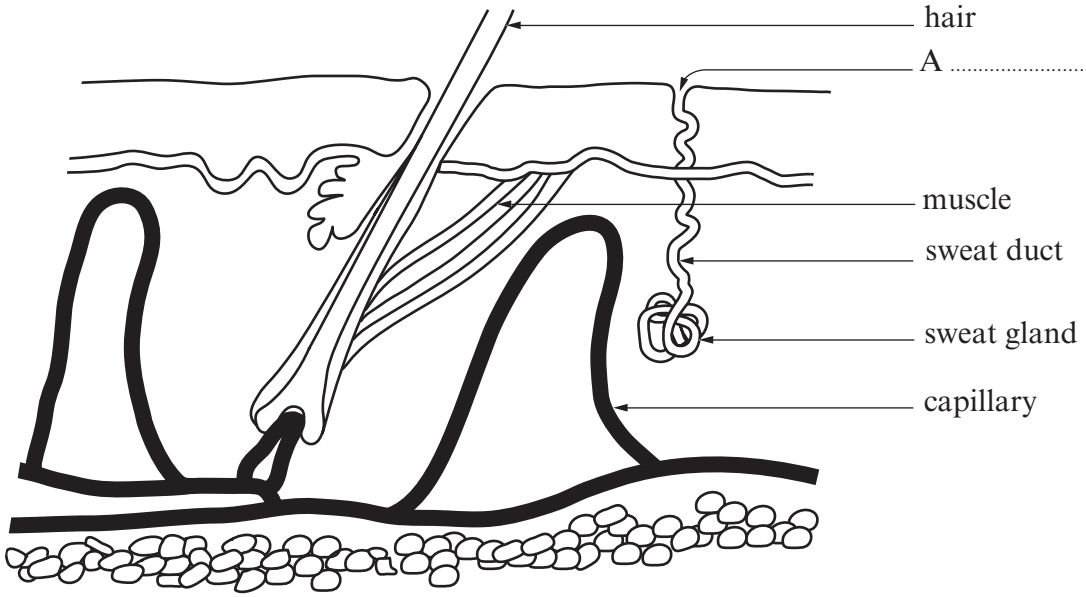
(b) Complete the sentences using some of the words below. [3]

sexual	asexual	identical	different	environment

Variation results from ..... reproduction when two parents produce offspring which have ..... genes. The ..... can also cause variation.

Examiner only

3. The diagram shows structures in human skin.



(a) Complete the diagram by labelling **A**. [1]

(b) (i) From the diagram, complete the table below by adding the structure for each function. [4]

Function	Structure
Becomes erect in cold temperatures	
Produces sweat	
Carries sweat to skin surface	
Length contracts in cold temperatures	
Diameter increases *(wider)* in high temperatures	

(ii) How does sweat production change if a person moves from a cold room to a warmer room? [1]

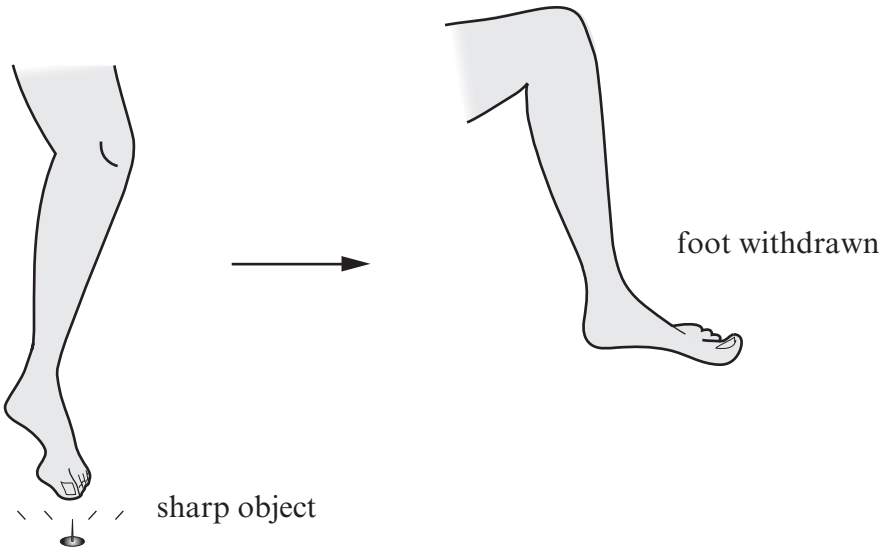
.....

(c) What is the benefit of shivering? [1]

.....

Examiner only

4. *(a)* The diagram shows a *reflex action*.



(i) Underline the correct answer to complete the sentence below. [1]

very quickly at medium speed very slowly

Reflexes happen .....

(ii) What is the purpose of a withdrawal reflex? [1]

.....

(b) Complete the sentences by using some of the words below. [4]

impulse	electrical	automatic	brain	receptor

When a sharp object touches the skin ..... cells are stimulated. A nerve ..... in the form of ..... signals carries the information into the nervous system. A reflex action is ..... , so it happens without thought.

(c) Name a sense organ which responds to a chemical stimulus. [1]

.....

Examiner only

5. • Most processed food contains salt.

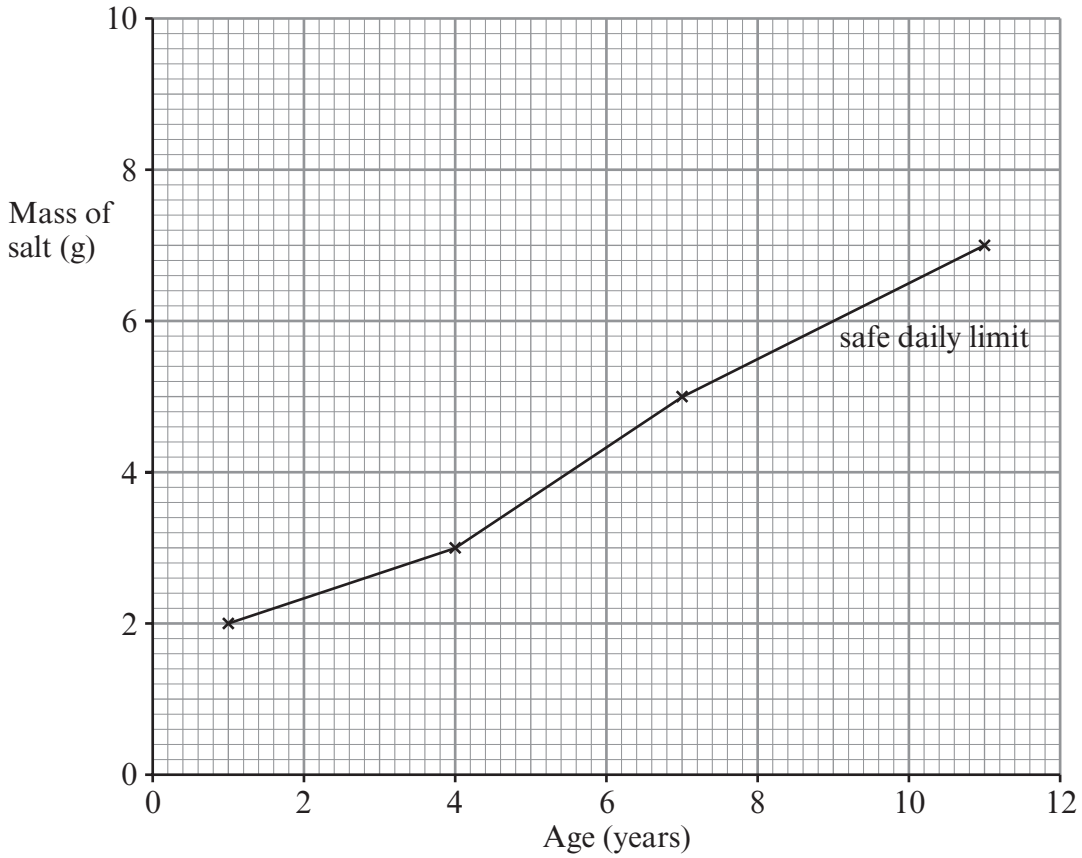
• Eating too much salt can cause health problems, especially in children.

Doctors investigated how much salt children eat each day and compared this with how much it is safe to eat. The results are shown below.

Age (years)	Mass of salt eaten daily (g)	Safe daily limit for salt (g)
0.5	0.2	–
1	2.8	2.0
4	5.1	3.0
7	7.4	5.0
11	9.6	7.0

UK Food Standards Agency 2007

(a) (i) Plot the results for mass of salt eaten daily onto the graph. Join the plots with a ruler. The graph showing the safe daily limit **has been done for you**. [3]



Examiner only

(ii) From your graph, calculate the difference between the mass of salt eaten daily at age 8 and the safe limit for this age. Show your working. [2]

Answer ..... g

(iii) Describe what the graph shows about the mass of salt eaten by children as they get older. [1]

.....

(b) How can a person find out how much salt is contained in processed food such as a packet of crisps? [1]

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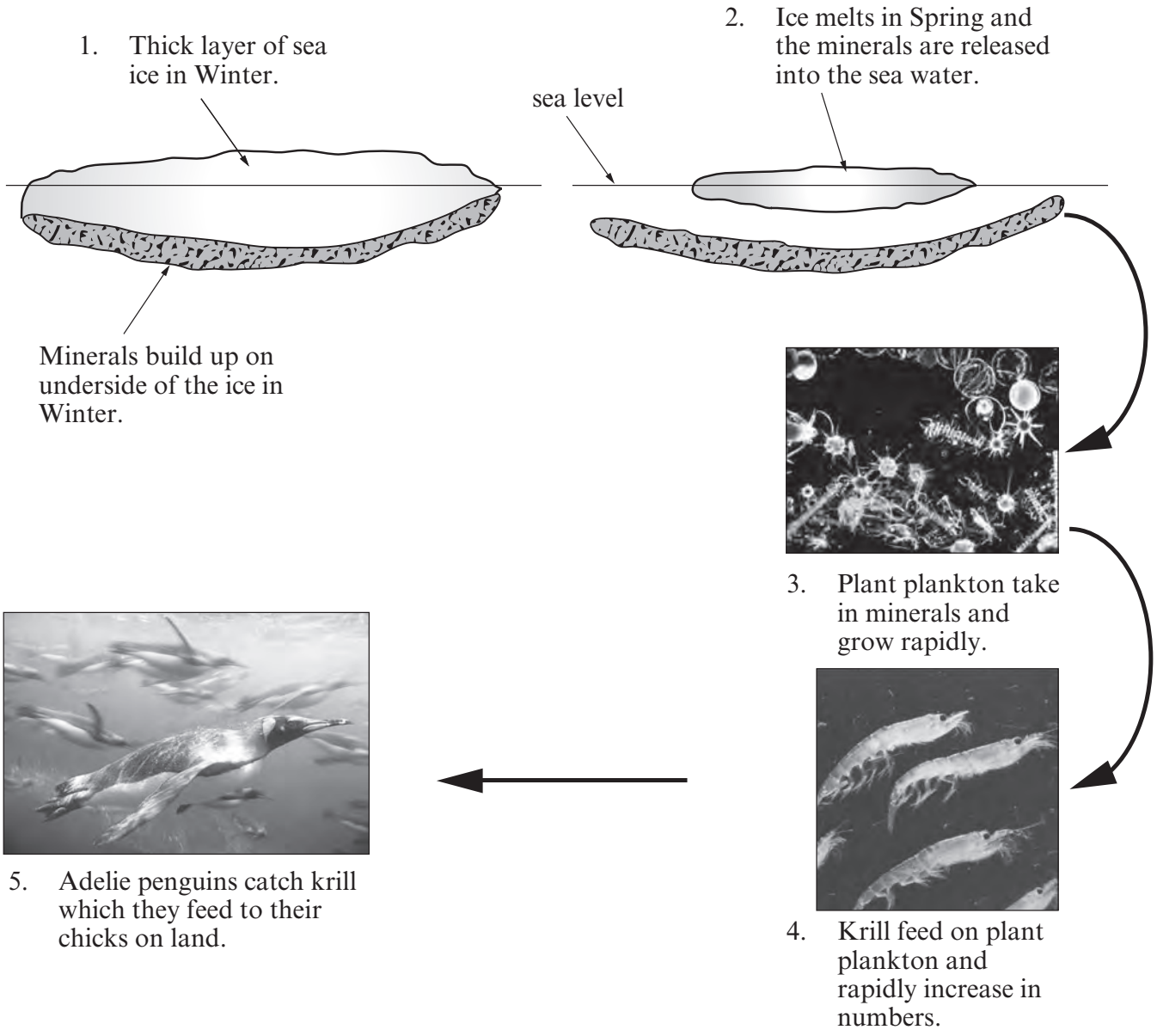
6. Sea ice builds up in the southern oceans around Antarctica every Winter. Vast quantities of minerals build up on the underside of the ice. In the Antarctic Spring the ice melts and releases the minerals into the sea water.



Fact file:

- In the Antarctic Winter of 1995 not so much sea ice formed as usual.
- In the following Antarctic Spring up to 50 Adelie penguin chicks starved to death each day on an Antarctic island.

Examiner only

(a) Using the information provided opposite, explain why the Adelie penguin chicks starved to death. [3]

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.....

(b) Apart from competition for food and minerals, state **two** *other* environmental factors that can affect the size of a population of organisms. [2]

(i) .....

(ii) .....

Examiner only

7. Nearly 1 in 15 adults in the UK is obese. It is more likely that people will develop diabetes if they are obese.

(a) Suggest **two** ways in which a person could help to reduce the risk of developing diabetes. [2]

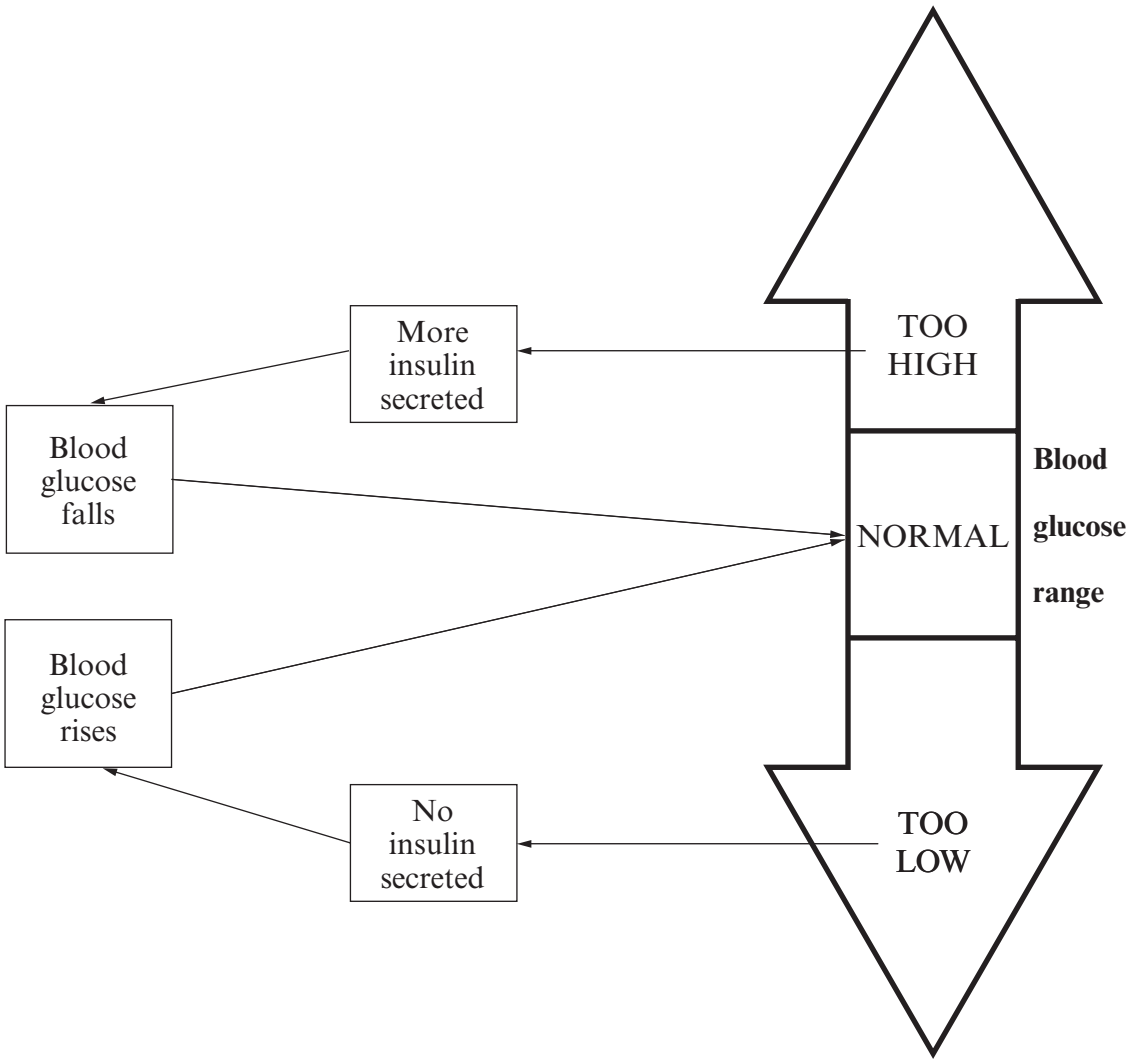
(i) .....

.....

(ii) .....

.....

(b) The diagram shows the mechanism of blood glucose control.



Examiner only

(i) Use your knowledge and the information in the diagram to explain how the blood glucose level is returned to normal when it rises too high. [3]

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.....

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(ii) I. How would the mechanism of blood glucose control differ in a person with diabetes? [1]

.....

.....

II. How would this affect the blood glucose level? [1]

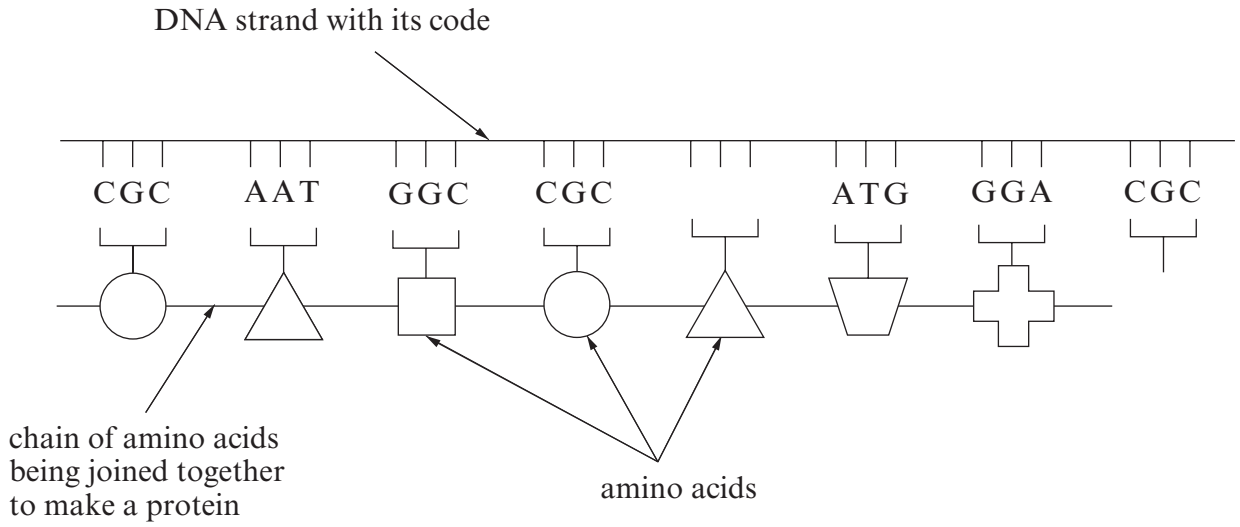
.....

.....

Examiner only

8. DNA contains a code which arranges amino acids in an order to form proteins. The code is represented by the letters A, G, T and C.

The simplified diagram shows a strand of DNA with its code and amino acids being arranged to form a protein.



(a) Complete the diagram by

(i) drawing the missing amino acid, [1]

(ii) writing in the missing piece of the code. [1]

(b) A mutation occurred which changed the code in the strand of DNA shown above. Suggest what effect this would have on the protein which is formed. [1]

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