

**Lord Wandsworth College
Scholarship Assessment**

Biology SAMPLE

Name: _____

Class: _____

Date: _____

Time: **16 minutes**

Marks: **25 marks**

Comments:

Q1.

The drawings below show eight different animals.



sparrow



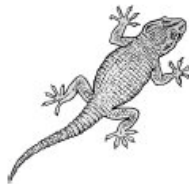
cat



dragonfly



housefly



lizard



squirrel



snake



hawk

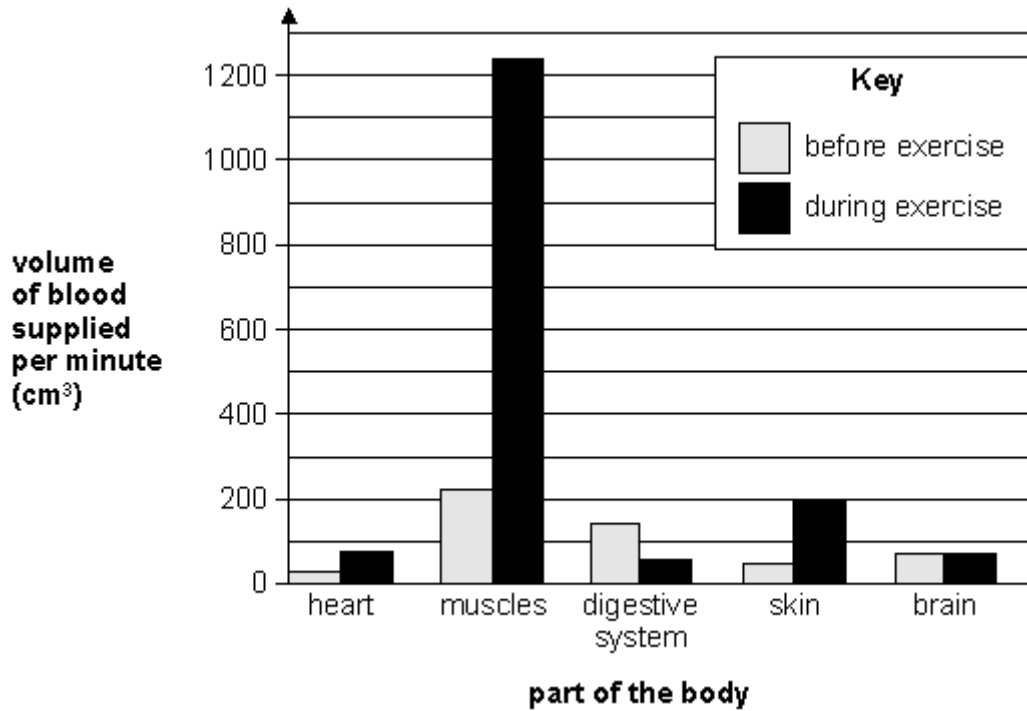
not to scale

- (a) Put a **ring** around the **two** animals above that do **not** have a backbone. 2 marks
- (b) What are the names of **two** mammals above?
- 1
- 2
- 1 mark
- (c) (i) What are the names of **two** reptiles above?
- 1
- 2
- 1 mark
- (ii) From the drawings, what is **one** feature that all reptiles have?
-
- 1 mark

Q2.

When people exercise, the volume of blood per minute needed to supply different parts of the body changes.

This is shown in the bar chart below.



(a) Explain why muscles need **more** blood during exercise. Give **three** reasons.

.....

.....

.....

.....

.....

3 marks

(b) Look at the bar chart. Suggest why you should not go for a long run just after eating a meal.

.....

.....

1 mark

(c) Why is it important that the blood supply to the brain stays constant?

.....

.....

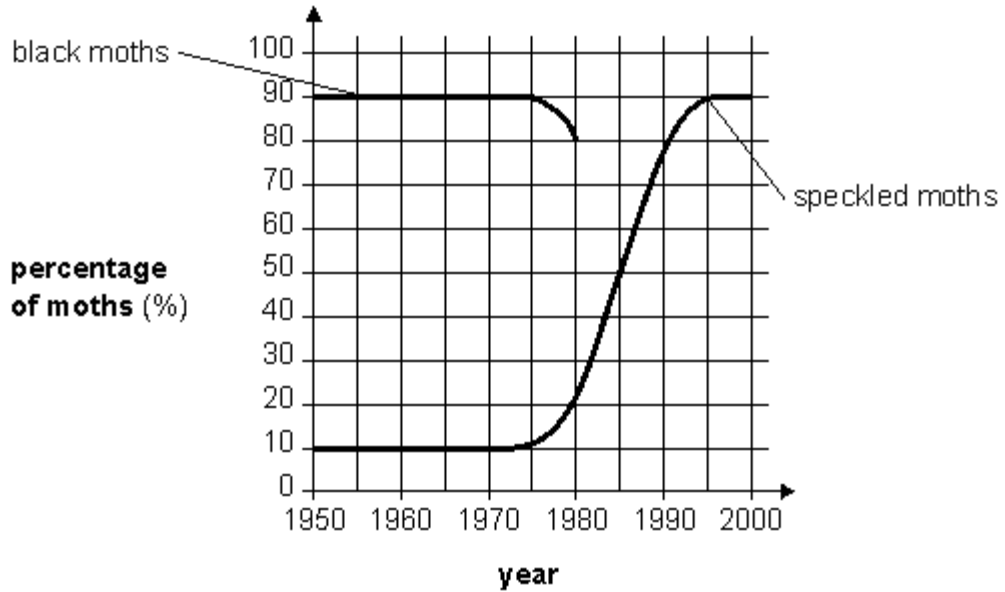
1 mark

Q3.

The diagram below shows the two different forms of the same moth. All these moths are either speckled or black.



- (a) The graph below shows how the percentage of **speckled** moths changed between 1950 and 2000 in one city.



- (i) Complete the table below with the missing **year** and **percentage**. Use the graph.

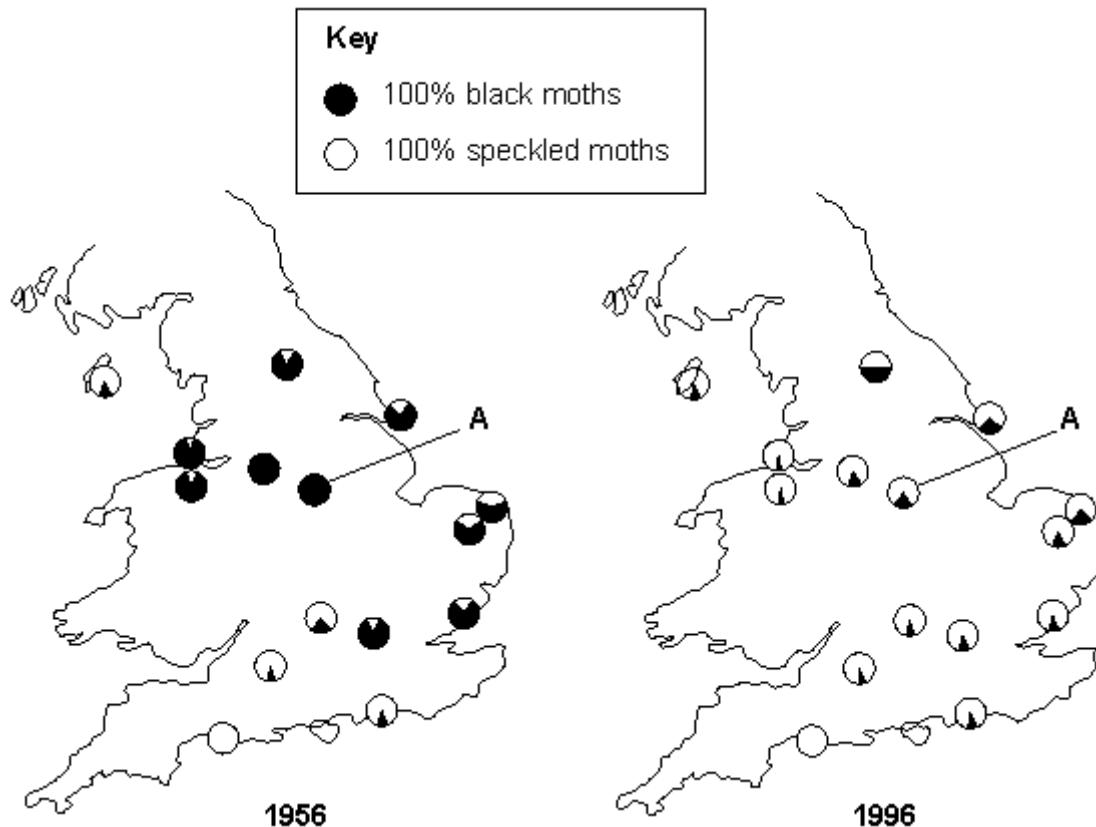
year	percentage of speckled moths (%)	percentage of black moths (%)	total percentage (%)
1970	10	90	100
_____	50	50	100
1990	78	_____	100

2 marks

- (ii) The percentage of **black** moths from 1950 to 1980 is also shown on the graph. **Continue** the line on the graph above to show how the percentage of **black** moths changed between 1980 and 2000.

2 marks

- (b) The maps below show the percentage of speckled moths and black moths at different places in Britain in 1956 and 1996.



How did the percentage of black moths change at place **A** between 1956 and 1996?

.....

1 mark

- (c) (i) Describe **one** way in which the data shown in the graph is better than the data shown in the maps.

.....

1 mark

- (ii) Describe **one** way in which the data shown in the maps is better than the data shown in the graph.

.....

1 mark
 maximum 7 marks

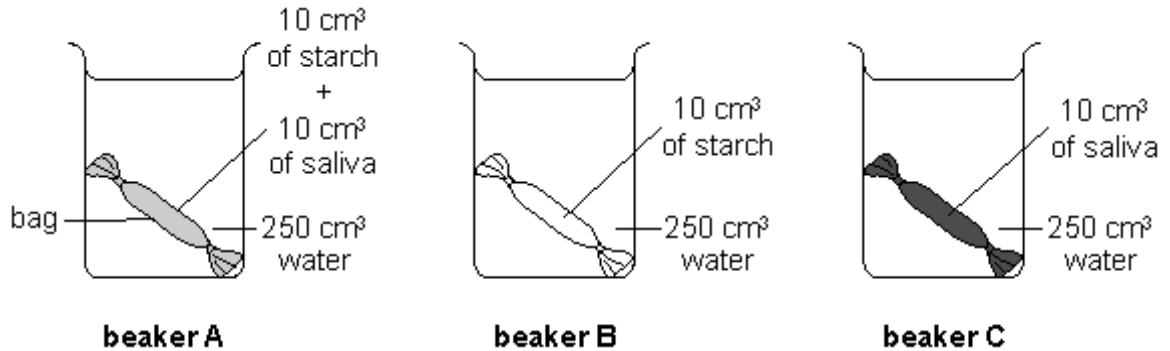
Q4.

Sally investigated how the human body digests and absorbs starch.

She used saliva to digest the starch.

To model digestion she used special bags made from a semi-permeable membrane. These bags have lots of very small holes.

Sally sets up the equipment as shown below. There is one special bag in each beaker.



She keeps the water in the beakers at 37°C.

After 20 minutes, Sally tested the contents of each beaker and bag for starch and sugar. The table below shows Sally's results.

	Was starch found in the bag?	Was sugar found in the bag?	Was starch found in the water?	Was sugar found in the water?
beaker A	✓	✓	✗	✓
beaker B	✓	✗	✗	✗
beaker C	✗	✗	✗	✗

(a) Suggest why Sally kept the water at 37°C.

.....

1 mark

(b) (i) Explain why sugar was found in the bag in beaker A.

.....

1 mark

(ii) Starch was **not** found in the **water** outside the bag in any beaker. Suggest why.

.....

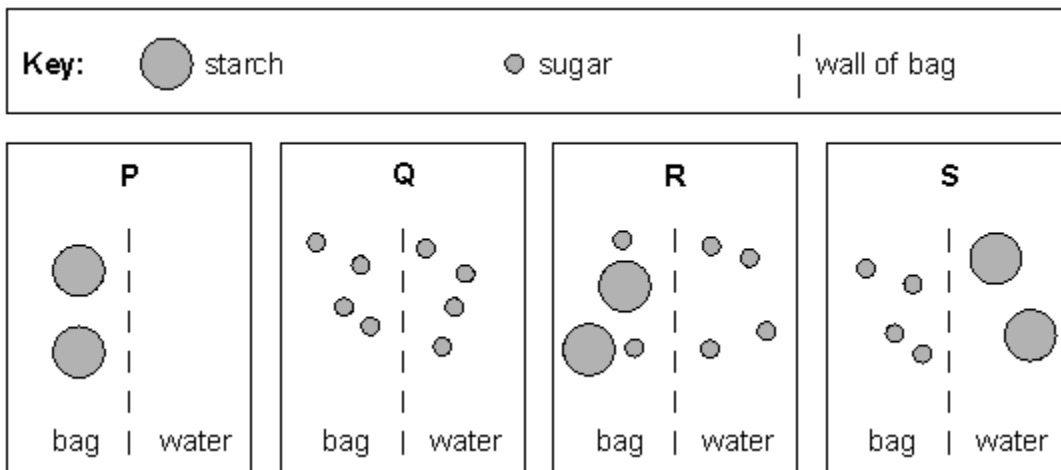
1 mark

(c) Why did Sally set up beaker C? Tick the correct box.

for a fair test	<input type="checkbox"/>	for accuracy	<input type="checkbox"/>
for reliability	<input type="checkbox"/>	for a control	<input type="checkbox"/>

1 mark

(d) Sally used diagrams to show what happened in her investigation.



Use the diagrams above to answer the following questions.

(i) Which diagram shows the **results** of beaker **B**? Write the letter.

.....

1 mark

(ii) Which diagram shows the **results** of beaker **A**? Write the letter.

.....

1 mark

(e) What does saliva contain that causes starch to change in beaker A?

.....

1 mark

(f) Sally chewed a piece of bread for 5 minutes without swallowing. What would she notice about the taste of the bread after chewing for 5 minutes? Use Sally's results to help you.

.....

1 mark
maximum 8 marks

Mark schemes

Q1.

(a) •



accept 'dragonfly'

accept 'housefly'

if more than two animals are given, deduct one mark for each incorrect answer minimum mark zero

accept one ring extending around both

2 (L3)

(b) • cat
squirrel

answers may be in either order

both answers are required for the mark

if more than two animals are given, award no mark

1 (L3)

(c) (i) • lizard
snake

*answers may be in either order **both** answers are required for the mark*

if more than two animals are given, award no mark

1 (L3)

(ii) • (dry) scales

accept 'scaly skin'

accept 'leathery eggs'

*non-unique features of reptiles e.g. 'cold blooded' **or** 'tail' **or** 'eyes' are insufficient*

1 (L4)

[5]

Q2.

(a) any **three** from

- energy is released more quickly

accept 'more energy is needed'

'the muscles work harder' is insufficient

- cells respire more quickly

accept 'respiration is quicker'

*accept 'muscles **or** they respire more quickly'*

'blood contains oxygen' is insufficient

- glucose is used up **or** supplied more quickly

*accept 'more glucose is used **or** needed'*

- oxygen is used up **or** supplied more quickly
*accept 'more oxygen is used **or** needed'*
- carbon dioxide **or** waste is produced **or** removed more quickly
*accept 'more carbon dioxide is produced **or** removed'*
- water is removed more quickly
*accept 'more water is produced **or** removed'*
- blood transports oxygen **or** glucose **or** carbon dioxide **or** waste
*accept, for **two marks**, 'blood transports more oxygen' **or** 'blood carries carbon dioxide more quickly' as they cover the fourth **or** fifth and seventh marking points*
- heat is produced **or** removed more quickly
*accept 'more heat is produced **or** removed'*

3 (L7)

(b) any **one** from

- less food is absorbed
'less blood gets to the digestive system' is insufficient
- the digestive system slows down
accept 'less food is digested'
*accept 'it may cause a stitch **or** cramp'*
accept 'less blood goes to the muscles than is needed'
*do **not** accept 'no food can be digested **or** absorbed'*

1 (L7)

(c) any **one** from

- the brain **or** brain cells will die if there is less **or** no oxygen **or** glucose
accept 'otherwise brain damage could occur'
'the brain will die' is insufficient as it does not explain what the brain needs
- the person might faint **or** feel dizzy **or** lack concentration
- the brain needs a regular supply of oxygen **or** glucose

1 (L7)

[5]

Q3.

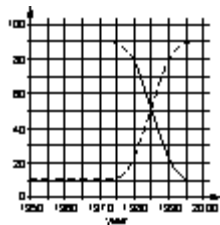
(a) (i) • 1985

1 (L6)

• 22 (%)

1 (L6)

(ii) •



award one mark for a line that passes through 50% at 1985
award one mark for a line that levels off at 10%

2 (L6)

- (b) • it decreased (by 75%)
accept the converse for speckled moths
'it changed by 75%' is insufficient
- in 1956 there was a greater percentage of black moths than in 1996
accept 'there is a greater proportion of speckled moths'
accept 'there are less (black moths)' or 'there are more speckled moths'

1 (L5)

- (c) (i) • it shows more years
accept 'it is more precise or accurate'
'it is accurate' is insufficient
accept 'it is easier to read the percentages'
'it shows how many there are' is insufficient
accept 'it shows (more) continuous data'
'it gives more information' is insufficient
accept 'it shows 1970 as well'
accept 'it shows years other than 1956 and 1996' or an example giving another named year

1 (L6)

- (ii) any **one** from
- it shows different locations
accept 'it shows where the moths are'
'it gives more information' is insufficient
 - it gives geographical detail
 - it covers a wide area

1 (L6)

[7]

Q4.

- (a) • (37 °C is) body temperature
accept 'so the saliva or enzymes would work'
accept 'it is a good or optimum temperature for digestion'
'to make it a fair test' is insufficient
'so they are all the same' is insufficient

1 (L5)

- (b) (i) • the starch is broken down **or** digested
'there is a reaction between starch and saliva' is insufficient 1 (L6)
- (ii) any **one** from
- starch could not pass through the bag
accept 'starch could not get through the holes'
'the bag is semi-permeable' is insufficient
 - starch is too big
'the bag holds it in' is insufficient 1 (L6)
- (c) • for a control ✓
if more than one box is ticked, award no mark 1 (L6)
- (d) (i) • P
if more than one letter is given, award no mark 1 (L6)
- (ii) • R
if more than one letter is given, award no mark 1 (L6)
- (e) • enzymes
*accept 'amylase' **or** 'carbohydrase'* 1 (L6)
- (f) any **one** from
- sweeter **or** sugary
*accept 'sugar' **or** 'sweet'*
 - it tastes of sugar (L6)

1

[8]