Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

8918218018

BIOLOGY **0610/63**

Paper 6 Alternative to Practical **May/June 2015**

1 hour

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

Electronic calculators may be used.
You may lose marks if you do not show your working or if you do not use appropriate units.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **10** printed pages and **2** blank pages.

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1 Urine is a waste product released from the body. It contains urea, water, salts and other metabolic wastes.

A student investigated the chemicals present in different samples of urine, **A**, **B** and **C**.

These samples were made up in the laboratory to represent urine.

The student carried out a test for protein and a test for reducing sugar on each sample.

(a) Describe the method that the student should use to safely test the samples for:

reducing sugar

.....

.....

.....

.....

protein.

.....

.....

.....

.....

[4]

(b) Table 1.1 shows the student's observations of the final colour in each of the two tests.

Table 1.1

sample	observation of final colour	
	reducing sugar test	protein test
A	blue	blue
B	red	blue
C	orange	violet

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Urine is often tested as part of a medical health check. The results of these urine tests can be used to suggest whether a person has a health problem.

Assume samples **A**, **B** and **C** were collected from three different people during a medical health check.

If reducing sugar is present, the person may be suffering from a disease called diabetes.

If protein is present, the person may be suffering from kidney problems.

However, if reducing sugar and protein are both absent from the urine, the person is likely to be healthy.

Use this information to make and explain a conclusion about the health of each of these people.

(i) person **A**

.....

.....

.....

.....

..... [2]

(ii) person **B**

.....

.....

.....

.....

..... [2]

(iii) person **C**

.....

.....

.....

.....

..... [2]

(c) The student decided to test the pH of samples **A**, **B** and **C** using litmus paper. Their teacher suggested that this was not the best way to test the pH and recommended that they used another method.

(i) Describe why the teacher thought that litmus was not suitable.

.....

.....

..... [1]

(ii) Suggest a suitable alternative method of determining the pH of a solution.

..... [1]

(d) One of the functions of the kidney is to reabsorb glucose back into the blood.

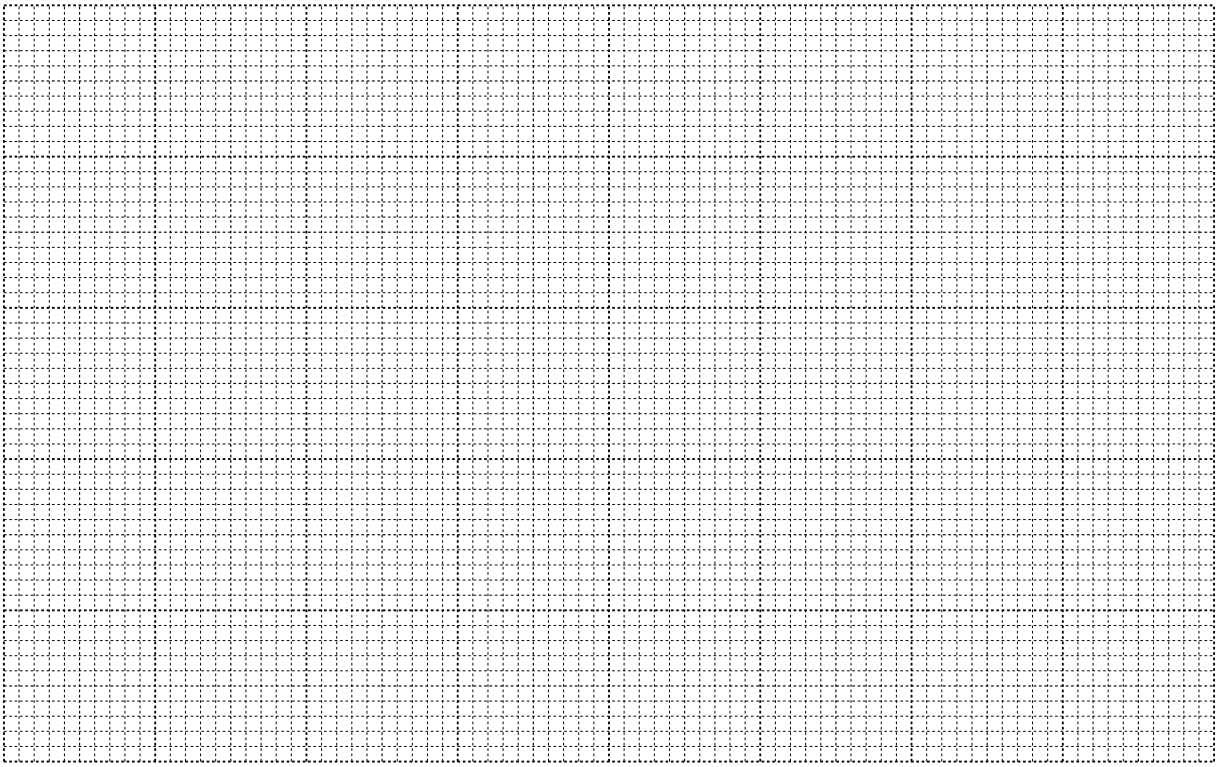
Table 1.2 shows the relationship between the glucose concentration in the blood and the amount of glucose excreted in the urine.

Table 1.2

blood glucose concentration / mg per 100 cm^3	glucose excreted in urine / mg per minute
0	0
100	0
200	0
300	40
400	100
500	190
600	280
700	370

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(i) Plot a graph of the data in Table 1.2.



[4]

(ii) Describe the trend shown by the data plotted in **(i)**.

.....

.....

.....

.....

..... [2]

(iii) Use your graph to find how much glucose is excreted in the urine when the blood glucose concentration is 280 mg per 100 cm^3.

..... mg per minute [1]

[Total: 19]

2 Fig. 2.1 shows an insect-pollinated flower.



Fig. 2.1

(a) Draw a large, labelled diagram of Fig. 2.1.

Your diagram should show the arrangement of the male and female parts.

[5]

(b) Fig. 2.2 shows a reduced image of the flower shown in Fig. 2.1, **A**, and a section through a different flower, **B**.



A **B**

Fig. 2.2

Look carefully at the flowers in Fig. 2.2. You may also find it helpful to look back at the enlarged image of **A** shown in Fig. 2.1.

(i) State **one visible** way in which flower **A** is **similar** to flower **B**.

.....

..... [1]

(ii) State **one** way in which the flower **A** is **different** to flower **B**.

.....

..... [1]

(c) Measure the length of line **DE** in Fig. 2.2.

length of line **DE** .....mm

Calculate the actual length of line **DE**.

Show your working. Give your answer to the nearest whole number.

actual length of line **DE** ..... mm [3]

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(d) Flowers produce a sugar solution so that a pollen tube can grow.

A student was planning an investigation to find out how the concentration of sugar solution might affect the rate of growth of pollen tubes.

State:

(i) the variable that should be changed

..... [1]

(ii) what should be measured

..... [1]

(iii) **three** variables that should be kept constant.

1 .....

2 .....

3 ..... [3]

[Total: 15]

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[Turn over

3 Fig. 3.1 shows four different animals that pollinate flowers.

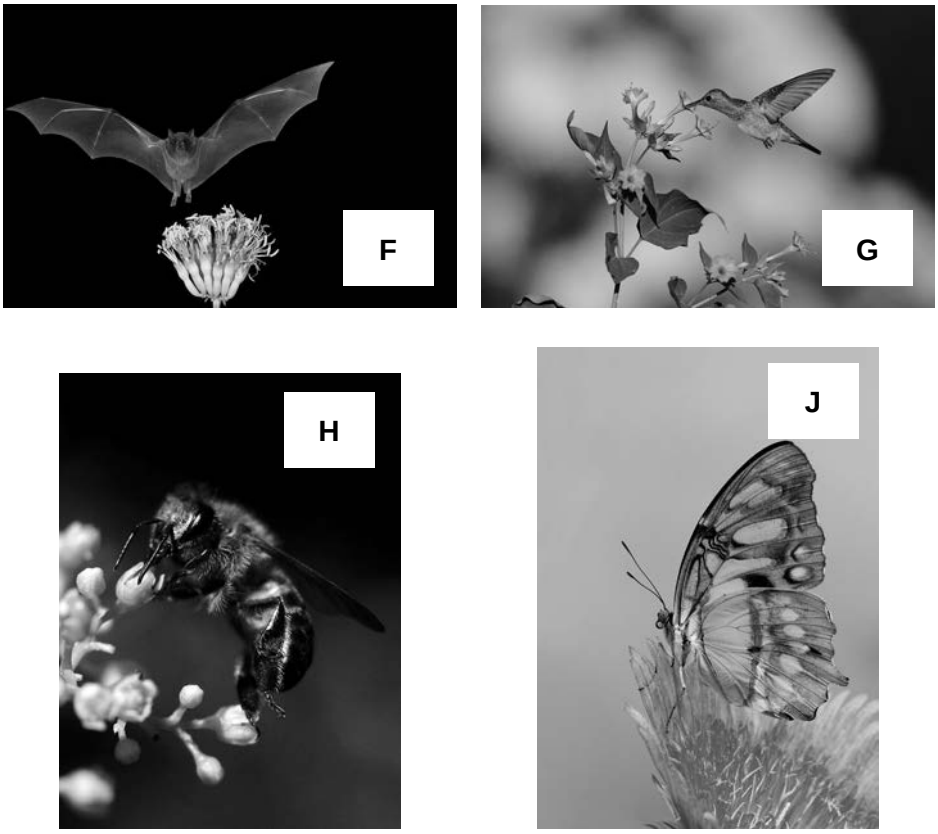


Fig. 3.1 **not to scale**

(a) (i) State **one** way, visible in Fig. 3.1, that animal **G** is different from animal **H**.

..... [1]

(ii) State **two** characteristics, **visible** in Fig. 3.1, that are common to all four animals, **F**, **G**, **H** and **J**.

1 .....

2 .....
[2]

(b) (i) State the letters of the **two** animals, **F**, **G**, **H** or **J**, which belong to the same animal group.

..... and ..... [1]

(ii) Identify the animal group to which they belong. Suggest a reason why you have chosen this group.

animal group .....

reason for choice .....

.....
[2]

[Total: 6]

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