GradeMax

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

BIOLOGY **0610/53**

Paper 5 Practical Test **May/June 2015**

1 hour 15 minutes

Candidates answer on the Question Paper.

Additional Materials: As listed in the Confidential Instructions.

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.

For Examiner's Use	
1	
2	
Total	

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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Read through all the questions on this paper carefully before starting work.

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

You are going to investigate the chemicals present in different samples of urine.

You are provided with three samples of urine labelled **A**, **B** and **C**.
These samples have been made up in the laboratory to represent urine.

(a) Complete Table 1.1 to describe the appearance of the three samples.

Table 1.1

sample	appearance
A	
B	
C	

[3]

(b) Urine is often tested as part of a medical health check.

Two common tests are described below.

Test 1

Pour a small volume of the urine sample into a test-tube.
Add approximately the same volume of biuret reagent to the test-tube.
Observe any colour change.

Test 2

Pour a small volume of the urine sample into a test-tube.
Add approximately the same volume of Benedict's solution to the test-tube.
Heat the test-tube in a water-bath.
Observe any colour change.

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You are going to carry out both of these tests on the three urine samples **A**, **B** and **C**.

You will carry out six tests in total.

(i) Prepare a table to record your observations in the space below.

[3]

(ii) Use the equipment provided to carry out Test 1 and Test 2 on each sample **A**, **B**, and **C**.

Raise your hand when you are ready for a supply of hot water for your water-bath in Test 2.

Record your observations in your table. [3]

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[Turn over

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(c) The results of 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 and your results to make and explain a conclusion about the health of each of these three people.

(i) person **A**

.....

.....

..... [2]

(ii) person **B**

.....

.....

..... [2]

(iii) person **C**

.....

.....

..... [2]

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(d) Suggest **two** sources of error with these tests.

For each error, describe how you could improve the method to decrease the effect of the error.

error 1 .....

.....

improvement 1 .....

.....

error 2 .....

.....

improvement 2 .....

.....

[4]

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

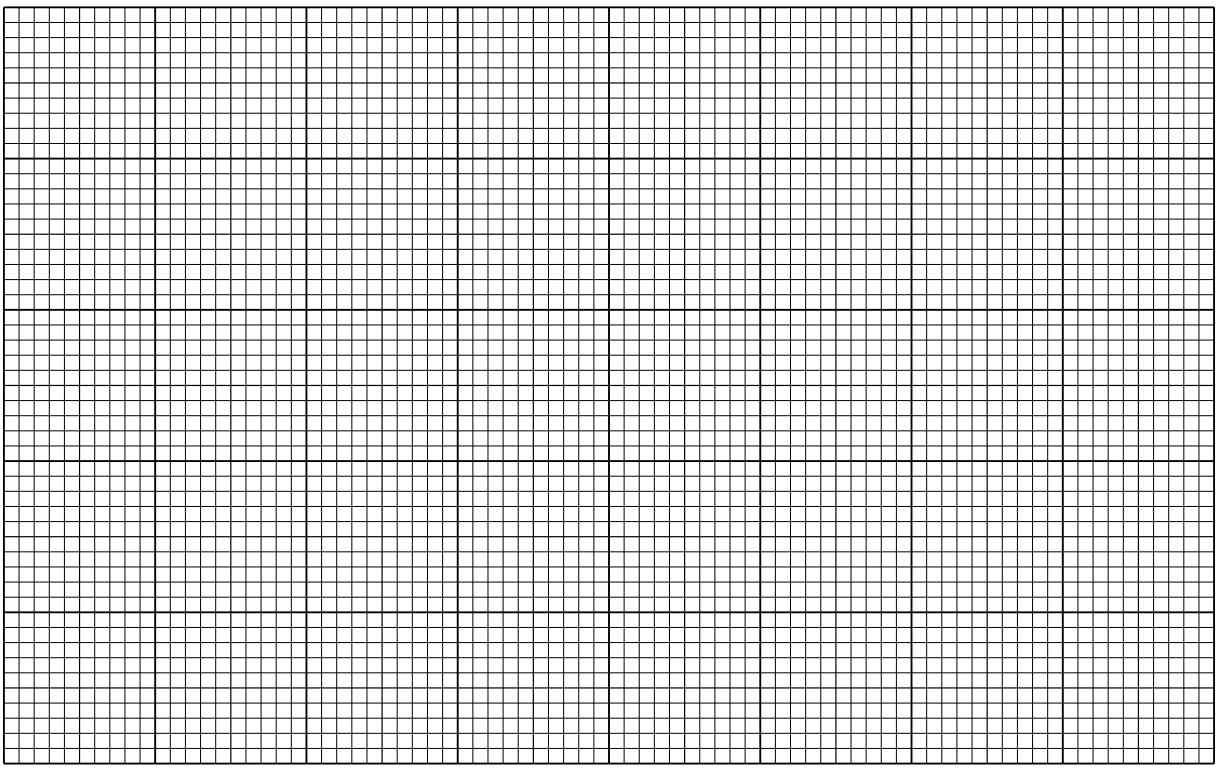
Table 1.2 shows the relationship between the glucose concentration in the blood and the amount of glucose excreted in the urine.

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 on the grid.



[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 level is 280 mg per 100 cm^3.

..... mg per minute [1]

[Total: 26]

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2 You are provided with half of a flower labelled **F**.

Carefully remove the plastic film.

Use the hand lens to observe the male and female parts in the centre of the half-flower.

(a) Draw a large, labelled diagram of your half-flower.

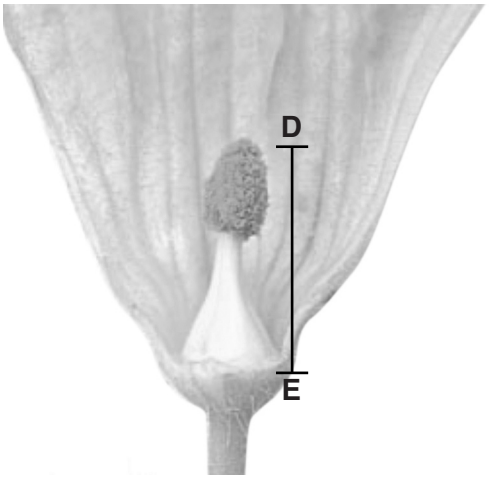
Your diagram should show the arrangement of the male and female parts.

[5]

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(b) Figure 2.1 shows half of a different flower.



× 0.4

Fig. 2.1

Look carefully at flower **F** and at the flower in Fig. 2.1.

(i) State **one** way in which the flower in Fig. 2.1 is **similar** to flower **F**.

.....

..... [1]

(ii) State **one** way in which the flower in Fig. 2.1 is **different** to flower **F**.

.....

..... [1]

(c) Measure the length of line **DE** in Fig. 2.1.

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

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

Show your working.

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

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[Turn over

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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) **two** variables that should be kept constant.

1 .....

2 .....
[2]

[Total: 14]

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