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Centre Number	Candidate Number	Name

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Advanced Level

BIOLOGY **9700/05**

Paper 5 Practical Test A2

October/November 2006

1 hour 30 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 a pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **both** questions.
You are advised to spend 50 minutes on Question 1 and 40 minutes on Question 2.

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	

This document consists of **5** printed pages and **3** blank pages.

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Answer **both** questions.

If you have been provided with the microscope, you are advised to begin with question **2**. If you will not receive the microscope until half way through the examination, you are advised to begin with question **1**.

1 You are provided with four artificial solutions that represent solutions from the human body. These are labelled **S1**, **S2**, **S3** and **S4**, and are not necessarily in the order listed below.

- artificial urine from a normal person
- artificial urine from a diabetic, containing glucose
- artificial urine from a person with damaged kidneys, containing protein
- artificial saliva containing amylase

You are also provided with starch suspension, labelled **S5**, as well as biuret and Benedict's solutions.

Use the procedure indicated below to identify each of the solutions **S1**, **S2**, **S3** and **S4**.

You are advised to use only small samples of the solutions so that you have some solution left for further tests.

Procedure

Carry out a biuret test on each of the solutions **S1**, **S2**, **S3** and **S4**.

Carry out a Benedict's test where necessary to identify two of the solutions.

Work out how to use the starch suspension and the Benedict's test to identify the other two solutions, and carry out the necessary steps.

(a) Record your results and identifications in a table in the space below.

[4]

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(b) Describe how you identified the artificial saliva.

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.....[5]

(c) You are required to plan but **not carry out**, an investigation using Benedict's reagent, to determine the approximate concentration of glucose in the urine from the diabetic person.

Describe the procedure that you would use.

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.....[6]

[Total: 15]

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2 **K1** is a stained transverse section through the kidney of a mammal.

Examine **K1** using both low-power and high-power objectives of your microscope.
Move the slide around so that you can see the different structures present. Use the eyepiece graticule to help you represent the proportions of the structures.

(a) Make a large, labelled, low-power, plan diagram.

[3]

(b) Locate a glomerulus.

(i) State two visible features that allow you to distinguish the glomerulus from the surrounding tissue.

1 .....

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2 .....

.....[2]

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(ii) Make a large, labelled, high-power drawing of a single renal capsule and an adjacent tubule.

[6]

(iii) The actual external diameter of a renal tubule is 0.07 mm.
Calculate the magnification of your drawing.
Show your working.

.....[2]

(iv) Many of the tubules in the section appear elliptical in shape, rather than circular.
Explain why this is so.

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.....[2]

[Total: 15]

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