EXAMINATIONS COUNCIL OF ZAMBIA

Joint Examination for the School Certificate
and General Certificate of Education Ordinary Level

BIOLOGY
PAPER 3 Practical Test

Wednesday 27 OCTOBER 2004 1 hour 15 minutes

Additional materials:
As listed in Instructions to Supervisors.

TIME: 1 hour 15 minutes

INSTRUCTIONS TO CANDIDATES
Write your name, centre number and candidate number in the spaces at the top of this page.
There are two questions in this paper.
Answer both questions.
Write your answers in the spaces provided on the question paper.
Use sharp pencils for your drawings. Coloured pencils and crayons should not be used.

INFORMATION FOR CANDIDATES
The number of marks is given in brackets [ ] at the end of each question or part question.

FOR EXAMINER’S USE

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Answer all the questions.

1. You are provided with specimen **W31**. Using a scalpel or new razor blade, cut specimen **W31** into small pieces. Put the cut pieces into test tube **T1**. Add 5cm of distilled water and shake the test tube.

   Allow the solid particles to settle down.

   Pour equal volumes of the clear liquid from test tube **T1** into test tubes labelled **T2** and **T3**.

   *(NB: Leave the solid particles in **T1**)*

   (a) Take the liquid in the test tube labelled **T2** and carry out the test for reducing sugar.

      (i) In the test method column of the table, describe how you will carry out the test for reducing sugar.

      (ii) Complete the observation and conclusion columns of the table.

   **Table 1: Reducing sugar test**

<table>
<thead>
<tr>
<th>Test Method</th>
<th>Observation</th>
<th>Conclusion</th>
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   (b) Take the test tube labelled **T3** and carry out the test for non-reducing sugar.

      (i) In the test method column of the table, describe how you will carry out the test for non-reducing sugar.

      (ii) Complete the observation and conclusion columns of the table.
Table 2: Non-reducing sugar test

<table>
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<th>Test Method</th>
<th>Observation</th>
<th>Conclusion</th>
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(c) What was the purpose of adding the following to the test liquids?
  (i) dilute hydrochloric acid
  
  ................................................................. [2]

  ................................................................. [2]

  ................................................................. 

  ................................................................. [2]

(ii) dilute sodium hydroxide solution.

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

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

(d) (i) In what form does W31 store the carbohydrate that has tested positive?

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

(ii) Give a reason why this carbohydrate is stored in the form mentioned above.

  ................................................................. [2]

(iii) Name the storage organ W31.

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

(e) In what form are carbohydrates transported in plants?

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

[Total: 20]

[Turn over]
Specimen **W32** and **W33** are parts of an animal.

(a)  
(i)   Name specimen **W32**. [1]

(ii)  Using a hand lens, examine specimen **W32**.

Make a large, labelled drawing of the external parts of specimen **W32** showing clearly as many structures as possible.

(iii) Measure the length of specimen **W32**. [5]

Measure the length of the drawing. [1]

(NB: Draw a line along the length measured.)

(iv) Calculate the magnification of your drawing.

Calculation:

Magnification: [1]
(b) (i) On the diagram, indicate the type of joints found at each end of specimen W32.

(ii) Give two examples of where each of these types of joints are found in a human body.

(c) Using a hand lens, examine the external parts of specimen W33 carefully.

State five structural differences between specimen W32 and W33.

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<th>Specimen W32</th>
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