EXAMINATIONS COUNCIL OF ZAMBIA

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

BIOLOGY

PAPER 3 Practical Test

Monday 17 OCTOBER 2011 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 provided 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 HB 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.

Cell phones are not allowed in the examination room.

FOR EXAMINER'S USE

<table>
<thead>
<tr>
<th>1</th>
</tr>
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<tbody>
<tr>
<td>2</td>
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<tr>
<td>Total</td>
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</tbody>
</table>

This question paper consists of 4 printed pages.
Answer all the questions.

1 You are provided with solutions A and B. You are also provided with solution Q which was extracted from the digestive system of a bird. Add 3 drops of solution Q to 1 cm³ of solution A and solution B, respectively. Shake gently.

(a) (i) Record your observations.

Solution A: ................................................................. [1]
Solution B: ................................................................. [1]

(ii) Record the conclusion from your observation.

Solution A: ................................................................. [1]
Solution B: ................................................................. [1]

(iii) State the organ in the digestive system where the process observed in (a) (i) above takes place.

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

(iv) Explain why solution B was used in the experiment.

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

(v) Identify solution Q

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

(vi) State the significance of solution Q in the digestive system of an animal.

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

(b) State the class, phylum and kingdom of specimens W24 and W25. Provide reasons for the classification. Use the table provided below for your answers.

<table>
<thead>
<tr>
<th>Specimen</th>
<th>W24</th>
<th>W25</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td></td>
<td></td>
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</tbody>
</table>
| Class |     |     | W24:
|        |     |     | W25:
| Phylum |
| Kingdom |

[Total 20]
2. You are provided with specimen W30 and W31. Make a transverse section of W30 and W31 using a new surgical blade or razor blade. Stain both transverse sections with iodine solution. Examine the stained sections under a magnifying glass.

(a) (i) State two observable structural similarities in specimens W30 and W31. ................................................................. [2]

(ii) State three visible structural differences between W30 and W31 by completing the table below.

<table>
<thead>
<tr>
<th>Specimen No.</th>
<th>W30</th>
<th>W31</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(iii) To which class of plants does W30 and W31 belong?
1. W30. ................................................................................ [1]
2. W31. ................................................................................ [1]

(iv) State the type of root system found in each of the specimens W30 and W31.
1. W30. ................................................................................ [1]
2. W31. ................................................................................ [1]
(b) (i) Make a large labelled drawing of the transverse section of W30 in the space provided below.

(ii) Using a ruler, measure specimen W30.
Measurement of W30.................................................................................................................... [1]

(iii) Calculate the magnification of your drawing (show your working)

Calculation:

Magnification = ................................................................................................................................. [3]

[Total 20]
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