EXAMINATIONS COUNCIL OF ZAMBIA

Examination for School Certificate Ordinary Level

Biology
Paper 3 Practical Test

Thursday 17 NOVEMBER 2016

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.

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

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

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This question paper consists of 5 printed pages
Answer both questions

1. You are provided with specimens A and B which are soil samples.

   (a) Using a hand lens, identify the differences between the two specimens A and B.

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

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

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

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

   (b) Place 10g of sample A in a funnel labelled A fitted with a filter paper and placed in a conical flask. Place 10g of sample B in a funnel labelled B fitted with a filter paper and placed in a conical flask.
   Pour 10cm$^3$ of water into each soil sample in the funnel.
   Measure and record the amount of water collected in 3 minutes in the table below and make a conclusion.

   (i) Specimen | Amount of water collected in cm$^3$ in 3 minutes | Conclusion
   | Specimen A | | |
   | Specimen B | | |
   ........................................................................................................................................... [3]

   (ii) Name the types of soil in specimen A and B.

   Specimen A ................................................................................................................................. [2]

   Specimen B .................................................................................................................................

   (iii) Name the physical property of soil being determined in the experiment.

   ........................................................................................................................................... [1] www.zedpastpapers.com
(iv) State the disadvantages to the plants growing in each of the specimens of soil in relation to the property observed above.

Specimen A: Disadvantages

1. ..........................................................................................................................
   ..........................................................................................................................
2. ..........................................................................................................................
   .......................................................................................................................... [2]

Specimen B: Disadvantages

1. ..........................................................................................................................
2. .......................................................................................................................... [2]

(v) Suggest ways in which specimen A and B can be improved and give reasons.

Specimen A

Ways of improving specimen A

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

Reasons:

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

Specimen B

Ways of improving specimen B

1. ..........................................................................................................................
   ..........................................................................................................................
2. ..........................................................................................................................
   .......................................................................................................................... [2]
Reasons:

1. .................................................................
   ....................................................................

2. .................................................................
   ....................................................................

3. .................................................................
   ....................................................................

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

Total 20 marks

2 (a) You are provided with solutions A and B. Test the pH of the solutions using litmus paper provided on a white tile. Using a dropper, add 3 drops of solution A onto one blue and one red litmus paper. Using another dropper, add 3 drops of solution B onto one blue and one red litmus paper. Record your observations and conclusions in the table below.

Table 1: Litmus Paper Test

<table>
<thead>
<tr>
<th>Colour of Litmus paper used</th>
<th>Solution</th>
<th>Observation</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red</td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue</td>
<td>B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red</td>
<td>B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) (i) State the digestive organ in the human body where a solution similar to solution A would be found. Give a reason for your answer.

Organ: .................................................................
Reason: .................................................................
.................................................................... [2]

(ii) State two organs in the human body where a solution similar to solution B would be found. Give a reason for your answer.
Organ 1

2

Reasons:

1

2

(iii) In which of the solutions A or B would protein digestion occur?

Solution:

Reason:

(c) Solution A and B provided have the same nutrient composition. Using the reagents provided, determine the nutrient composition of the solutions. Write the test method and record your observations and conclusions in the table below.

Table 2: Protein Test

<table>
<thead>
<tr>
<th>Solution</th>
<th>Method</th>
<th>Observation</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total 20 marks
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