EXAMINATIONS COUNCIL OF ZAMBIA
JUNIOR SECONDARY SCHOOL LEAVING EXAMINATION (GRADE 9) - 2016

Integrated Science 502/3
Paper 3 Practical Test

(INTERNAL AND EXTERNAL CANDIDATES)

Time: 1 hour
Marks: 20

Name of candidate:__________________________________________________________

Examination No.:____________________________________________________________

School / Centre:____________________________________________________________

Instructions to candidates

1 Write your name, centre number and candidate number in the spaces provided at the top of this page.

2 There are two questions in this paper, answer both.

3 Write your answers in the spaces provided on the question paper.

4 Use sharp HB pencil where you are required to draw. Coloured pencils and crayons should not be used.

5 Show steps in any calculations and record all results and observations in the spaces provided.

Information for candidates

The number of marks is shown in brackets [ ] at the end of each question or part of the question.

Cell phones are not allowed in this examination room.

For examiners use

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

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO
**QUESTION 1**

In this experiment you will test two food samples for the presence of starch and protein.

You are provided with two test tubes labelled \textbf{S1} and \textbf{S2} containing food samples suspended in water and two empty test tubes also labelled \textbf{S1} and \textbf{S2} respectively.

(a) Put half of the contents of \textbf{S1} in the test tube labelled \textbf{S1}.

Put half of the contents of \textbf{S2} in the test tube labelled \textbf{S2}.

Test the contents of each of the two test tubes \textbf{S1} and \textbf{S2} for the presence of starch.

(i) Record your results in the table below:

<table>
<thead>
<tr>
<th>Observation after testing for starch</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textbf{S1}</td>
<td></td>
</tr>
<tr>
<td>\textbf{S2}</td>
<td></td>
</tr>
</tbody>
</table>

(ii) Describe how you carried out the starch test on each sample.

........................................................................................................................................
........................................................................................................................................ [1]
(b) Another nutrient found in food is protein. To test for the presence of protein, biuret reagent is used.

When biuret reagent is added to a food sample containing protein, the biuret reagent turns purple from blue.

Test the remaining food samples in \textbf{S1} and \textbf{S2} for the presence of protein by adding three drops of biuret solution to each.

(i) Record your results in the table below.

<table>
<thead>
<tr>
<th>Observation after testing for protein</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textbf{S1}</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>\textbf{S2}</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(ii) Describe how you carried out the test for protein on each sample.

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

[Total: 10 marks]
QUESTION 2

In this experiment, you will measure the mass of different volumes of a liquid P.

You are provided with a 50cm³ measuring cylinder, a sample of liquid P in a beaker labelled A, an electronic balance and an empty beaker labelled B.

(a) Measure the mass of the empty beaker labelled B and record the mass.

Mass of beaker B = ................................................................. [1]

(b) Measure 10cm³ of liquid P using the measuring cylinder. Pour the 10cm³ of liquid P in the beaker labelled B and measure the mass of the beaker plus liquid P. Record the mass obtained.

Mass of beaker B plus liquid P = ........................................... [1]

(c) Calculate the mass of 10cm³ of liquid P.

Mass of liquid P = ...................................................................... [1]

(d) Repeat step (b) above for different volumes of liquid P as shown in the table below. For each, calculate the mass of the liquid P and record your results in the table below.

<table>
<thead>
<tr>
<th>Volume of P in cm³</th>
<th>Mass of beaker plus liquid P in grams</th>
<th>Mass of liquid P in grams</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
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<td>40</td>
<td></td>
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<tr>
<td>50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[4]
(e) On the grid below, plot a graph of mass of liquid P against volume of liquid P.

(f) What physical quantity is represented by the gradient of the graph of mass against volume?

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

[Total: 10 marks]