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 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.

Cellphones are not allowed in the examination room.
1 (a) You are provided with specimen D30, D31, D32, D33 and D34. D32 was boiled for a period of three minutes.

You are also provided with five test tubes (T1 – T5). For each of the treatments below allow three minutes for the reaction to take place and record your observations in the table below.

(i) Introduce D30 into T1 containing 2cm$^3$ of distilled water.

(ii) Introduce D31 into T2 containing 2cm$^3$ of bicarbonate of soda.

(iii) Introduce D33 into T3 containing 2cm$^3$ of vinegar.

(iv) Introduce D34 into T4 containing 2cm$^3$ of hydrogen peroxide.

(v) Introduce D32 into T5 containing 2cm$^3$ of hydrogen peroxide.

Complete the table of observations and conclusions given below.

<table>
<thead>
<tr>
<th>TEST TUBE</th>
<th>OBSERVATION</th>
<th>CONCLUSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(vi) State the reason for T1 in the experiment.

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

(vii) Explain the difference in the chemical reaction between T4 and T5.

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

(viii) Explain the purpose of T2 and T3 in the experiment.

T2 .................................................................................................................. [2]

T3 .................................................................................................................. [2]

(b) The specimens in (a) contain the enzyme catalase that breaks down hydrogen peroxide to water and oxygen.

(i) What would be the effect on the volume of oxygen evolved if ...

1. temperature is changed from 0 to 35°C.

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

2. the concentration of hydrogen peroxide is reduced.

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

(i) Why is it necessary for hydrogen peroxide to be broken down by the liver?

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

(c) State three functions of the liver.

(i) .................................................................................................................. [1]

(ii) .................................................................................................................. [1]

(iii) .................................................................................................................. [1]

[Total 20]

[Turn over]
2 (a) Examine W31 and W32.

(i) State one similarity between W31 and W32.

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

(ii) Write two differences between the specimens?

<table>
<thead>
<tr>
<th>W31</th>
<th>W32</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
</tbody>
</table>

[2]

(b) (i) Make a large, labelled drawing of W32.
(ii) Measure accurately the length of W32 and use this information to calculate the magnification of your drawing.

Length of W32: .............................................................. [1]

Calculation:

magnification: .................................................................. [2]

(c) Carry out tests to investigate the presence of reducing sugar and starch in

(i) the peel (outer covering) of W31.

(ii) the inner juicy region of W31

(iii) the edible part of W32

Where necessary cut the specimen to be tested into tiny pieces. Do this on the tile or slide provided before putting the pieces in a test tube.

Record the results of your tests, and state the conclusions you draw from them in the table below.

<table>
<thead>
<tr>
<th>SPECIMEN</th>
<th>TEST</th>
<th>RESULTS</th>
<th>CONCLUSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>W31 (Peel)</td>
<td>Reducing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sugar</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Starch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W31 (Inner juicy region)</td>
<td>Reducing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sugar</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Starch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W32 (Edible part)</td>
<td>Reducing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sugar</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Starch</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(d) Describe in detail the way you carried out the test for ... 

(i) reducing sugar

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

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

(i) starch

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

[Total 20]
SUPERVISOR’S REPORT

The Supervisor or Teacher responsible for the subject is asked to answer the following questions.

1. Was any difficulty experienced in providing the necessary materials? If so, give brief particulars.

2. Did the candidates experience any difficulty in the course of the examination? If so, give brief particulars. Reference should be made to

(a) difficulties arising from faulty apparatus, substitute specimens etc;
(b) accidents due to apparatus or materials;
(c) any information that is likely to assist the Examiner, especially if this cannot be discovered from the scripts.

INFORMATION THAT APPLIES TO ALL CANDIDATES NEED ONLY BE GIVEN ONCE.

Signed: ...........................................................................................................................................

Name (in block capitals) .....................................................................................................................

[Turn over
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