INSTRUCTIONS TO CANDIDATES
1. Write your name, School and Index Number in the spaces provided above.
2. Sign and write the date of examination in spaces provided above.
3. Answer ALL the questions in the spaces provided.
4. Answers must be written in the spaces provided in the question paper.
5. Additional papers MUST NOT be inserted.

FOR EXAMINER’S USE ONLY

<table>
<thead>
<tr>
<th>Question</th>
<th>Maximum Score</th>
<th>Candidate’s Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 4</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

This paper consists of 4 printed pages.
Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing.
Question 1.
Below are photographs of various animals. Study the pictures carefully and use the dichotomous key shown below to identify the organisms.

1. a) Jointed legs present ................................................. Go to 2
   b) Jointed legs absent ..................................................Go to 6
2. a) Three pairs of legs ...................................................Go to 3
   b) More than three pair of legs .......................................Go to 5
3. a) Wings present ..........................................................Go to 4
   b) Wings absent ..........................................................Bed bug
4. a) Two pairs of wings ....................................................Dragonfly
   b) One pair of wings ................................................... Housefly
5. a) Antennae present ......................................................Crayfish
   b) Antennae absent .....................................................Mile
6. a) Shell present .............................................................Snail
   b) Shell absent .......................................................... Go to 7
7. a) Prominent clitellum visible ........................................Earthworm
   b) No clitellum visible ..................................................Leech

Fill the table below to identify the organism (10marks)

<table>
<thead>
<tr>
<th>Organism</th>
<th>Identity</th>
<th>Steps followed</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
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<td>G</td>
<td></td>
<td></td>
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<tr>
<td>H</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Question 2

You are provided with:
- A piece of mammalian fresh liver (4cm x 4cm) labeled P
- 15m/s of 3% hydrogen peroxide (H₂O₂)
- Dilute hydrochloric acid (HCL)
- Dilute sodium hydroxide (NaOH)
- Distilled water
- Means of heating
- Means of labeling
- Test tube holders
- Razor blade; A ruler
- 4 boiling tubes.

Prepare four boiling –tubes as below and label them A, B, C, D

Boiling tube A – Add 3ml of 3% H₂O₂ + 2ml dilute HCL
Boiling tube B – Add 3ml of 3% H₂O₂ + distilled water
Boiling tube C – Add 3ml of 3% H₂O₂ + dilute NaOH
Boiling tube D – Add 3ml of 3% H₂O₂ + distilled water.

a) From specimen P₁ provided, cut four cubes of size 1cm x 1cm x 1cm. Drop one piece into each of the test-tubes A, B and C. Record your observations in the table below. (3marks)

<table>
<thead>
<tr>
<th>Tube</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>

b) Boil the fourth cube of specimen P₁ in water in a boiling tube for 3 minutes. Remove it from water, cool it and drop it in tube D. Record your observations. (3marks)

c) Account for your results in tubes B and D

Tube B (1mark)

Tube D (1mark)

d) Account for the results in tubes A and C (2marks)

e) i) What would be the effect of grinding specimen P₁ on the rate of reaction in tube B? (2marks)
Question 3

You are provided with:
- A ripe tomato fruit labeled S
- A matured legume pool (labeled T)
- A mature orange fruit labeled U
- A mature pawpaw fruit labeled Y
- A razor blade
- A ruler

a) Observe specimen S and T carefully
i) With reasons in each case state the agent of dispersal
   Specimen S
   Agent
   Reasons
   Specimen T
   Agent
   Reasons
   ii) Give one advantage that the method of dispersal of specimen S has over that of specimen T
   iii) What are the differences between specimen S and T

b) Make a cross section through specimen S into two halves
i) Draw and label one of halves.

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