Each candidate should be provided with:

Distilled water (20mls)

10mls of Hydrogen peroxide labeled H (5volumes)

Reagents for food tests

Cockroach labeled K

Worker bee labeled L

Bean seed soaked in water for 12hours labeled A

Egg plant fruit labeled D

Hibiscus flower labeled O

Morning glory flower labeled M

Cassia flower labeled N

Razor blade

Mortar and pestle

6 Test tubes

Measuring cylinder; 10mls or 25 or 50mls

Hand lens

Masking tape for labeling

Source of heat

553/2
PRACTICAL
PAPER 2
JULY/AUGUST 2022

2HOURS

ASSHU MBARARA JOINT MOCK EXAMINATIONS
Uganda Certificate of Education
BIOLOGY
PRACTICAL
Paper 2

2hours

INSTRUCTIONS TO CANDIDATES

- This paper consists of three questions.
- Answer all questions
- All answers should be written in the spaces provided.
- Drawings should be made in the spaces provided
- Use sharp pencils for your drawings.
- Colored pencils or crayons should not be used
- No additional sheets of writing paper are to be inserted in the booklet.
- Work on additional sheets will not be marked.

FOR EXAMINER'S USE ONLY

Question	Marks	Examiner's No / Initials.
1.		
2.		
3.		
TOTAL		

1. You are provided with specimen D which is a plant organ. Cut the specimen transversely.
Crush half of the specimen D in a mortar using a pestle. Add $10cm^3$ of water to the crushed portion and decant.
(a) Carry out tests on the extract using the reagents provided and record your observations and deductions in the table 1 below *(10marks)*

Procedure	Observation	Deduction
(i) To $1cm^3$ of extract D in a test tube, add 3 drops of iodine solution		
(ii) To $1cm^3$ of extract D in a test tube, add $1cm^3$ of Benedict's solution and boil		
(iii) To $1cm^3$ of extract D in a test tube, add $1cm^3$ of sodium hydroxide solution, followed by 3 drops of copper (II) sulphate solution		
(iv) To $1cm^3$ of DCPIP, add extract D drop by drop		

(b) What are the likely benefits to a person of eating specimen D *(2marks)*

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(c) From the remaining half of specimen D, cut out a cube measuring 1cm x 1cm x 1cm.

Divide the cube into two equal parts. Label two test tubes 1 and 2. Add $3cm^3$ of water into test tube 1 and $3cm^3$ of H into test tube 2.

(i) Record your observations and deductions in the table 2 below;

(4marks)

Test tube	Observation	Deduction
(i) Test tube 1 $3cm^3$ of water and half of cube of specimen D		
(ii) Test tube 2 $3cm^3$ of solution H and half of cube of specimen D		

(d) (i) Giving a reason, state the identity of the active substance in specimen D *(3marks)*

Identity .....

Reason.....

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i) What would be the effect of boiling the cube from specimen D on the activity of its active substance?

Explain your answer. *(2marks)*

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2. You are provided with specimens M, N and O which are flowers. Examine the specimens and answer the following questions.

(a) Describe the essential parts of the specimen M and specimen N

(i) Specimen M *(3marks)*

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(ii) Specimen N *(2marks)*

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(b) (i) Describe how specimen O is adapted for pollination *(3marks)*

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(iii) State the type of pollination which is most likely to occur in specimen O. Give a reason for your answer. *(2marks)*

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(c) State 4 differences between specimen O and specimen N. *(4marks)*

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(d) Cut specimen M longitudinally using a sharp razor blade. Spread the petals properly. Draw and label one section of the specimen M *(6marks)*

3. You are provided with specimen K and L.

(a) (i) State the differences between the wings of specimen K and wings of specimen L.

Differences

Wings of specimen K	**Wings of specimen L**

i) The organisms belong to the same class. State the distinctive features for their phylum and class.

Phylum *(1 ½ marks)*

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Class *(1 ½ marks)*

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(b) Describe how the following parts of specimen L are modified to suit the organism to its mode of life *(4marks)*

(i) Head

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(ii) Limbs

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(c) (i) Measure the length of the front limb and hind limb of specimen K and record your result *(2marks)*

Front limb

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Hind limb

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ii) Calculate the ratio of the length of front limb to the length of hind limb *(2marks)*

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iii) Explain the biological significance of the above ratios in c(ii) *(2marks)*

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(d) Place specimen K with ventral side upper most. Draw the last three abdominal segments of the specimen. Do not label the drawing. *(3marks)*

END