

Students Name: .....

School Name:..... Index Number .....

P530/3  
**BIOLOGY**  
**PRACTICAL**  
**Paper 3**  
July/Aug. 2025  
**3 $\frac{1}{4}$  hours**



# **HES MOCK EXAMINATIONS 2025**

**UGANDA ADVANCED CERTIFICATE OF EDUCATION**

**BIOLOGY**

**PRACTICAL**

**PAPER 3**

**3 $\frac{1}{4}$  HOURS**

## **INSTRUCTIONS**

- This paper consists of **three** questions
- Answer **all** the questions
- Answers must be written in the spaces provided. Additional sheets of paper must **not** be inserted in this booklet.

1. You are provided with specimen which is freshly killed.

a) Examine the tail of specimen r

(i) Describe the structure and location of specimen R (3 marks)

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(ii) Explain how the structure of the tail enables the specimen to survive during hot conditions (4 marks)

b) Place the specimen dorsal side upper most with the head facing away from you. Draw the lateral side of the; label only structures for sensitivity. (5 marks)

c) Dissect specimen to open the abdomen in the usual way carefully displace the alimentary canal to the right. Trace for blood circulation to the parts of alimentary canal to posterior to the duodenum. And left hind limb and blood circulation from urinal genital structure on the left of the animal. Draw and label blood circulation (17 marks)

- d) By further dissect open the chest to expose structures in the chest cavity. Trace for blood vessels serving the left fore limb and the left lung. Draw and label. (13 marks)

2. You are provided with specimen T and solutions Rand S

- a) Label two petr dishes R and S to each petr dish, add 8ml of corresponding solutions

Now obtain two strips from the stalk of T measuring 0.5cm wide and 40mm long. Place one R and S. leave it for 30 minutes.

- (i) After 30 minutes, record your findings by describing and drawing the strip in table 1 below

| Solutions | Drawing | Description |
|-----------|---------|-------------|
| R         |         |             |
| S         |         |             |

- (ii) Explain the difference in the appearance of the strips in R and S after 30 minutes. (3 marks)

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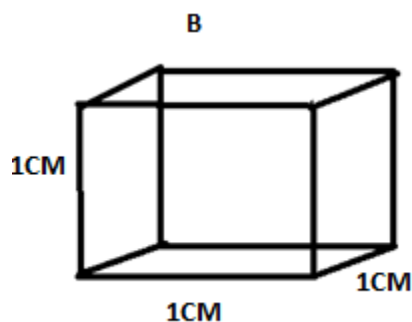
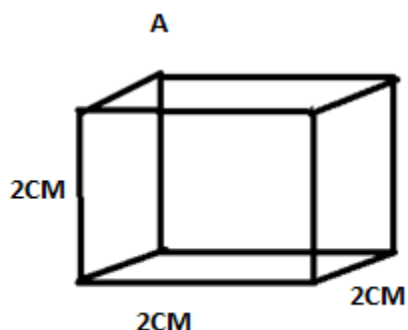
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- b) Label two beakers 1 and 2. In each beaker add 30ml of solution R. obtain two cubes A and B from Z measuring (2cmx2cm x2cm) and (1cmx1cmx1cm) respectively as shown below.



Place cubes A and B into beakers 1 and 2 respectively. Leave it for 1 Hour.

- (i) Calculate the surface area volume and surface volume in table 2 (6 marks)

| Cubes | Surface area | Volume | Surface area volume |
|-------|--------------|--------|---------------------|
| A     |              |        |                     |
| B     |              |        |                     |

- (ii) After 1 hour carefully remove the cubes and measure the volumes of solution R in each beaker record in table 3 (6 marks)

| Beakers | Volume | Final volume of the cubes |
|---------|--------|---------------------------|
| 1       |        |                           |
| 2       |        |                           |

- (iii) Explain the result in the table 3

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- c) Obtain two other cubes measuring (2cmx2cmx2cm) and (1cmx1cmx1cm) for cubes L and M label two small beakers L and M. to each beaker add 15ml of solution P place cubes L and M into corresponding beakers and leave for 30 minutes. Cut each cube into two halves, record distance X moved by the solution into the cube. (2 marks)

- (i) Table 4

| Cube | Distance X |
|------|------------|
| L    |            |
| M    |            |

(ii) Explain the results in table 4 (4 marks)

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3. You are provided with specimens W,X and Y. state the phylum and to which specimens W,X and Y belongs giving one reason. (6 marks)

Phylum of W

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Reason

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Phylum x

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Reason

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Phylum Y

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Reason

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- b) Observe specimens W and Y and state the structure adaptations for their mode of nutrition.

Adaptions for W (2 marks)

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Adaptions for Y (2 marks)

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- c) (i) Isolate one filament from specimen X. observe under medium power of a microscope.

(ii) Draw one cell from the field of view. (Do not label) (4 marks)

(iii) Calculate the magnifications of the cell drawn above (8 marks)

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d) Isolate one vertical unit from specimen Y examine under medium power of microscope.

(i) Describe the structure of the unit examined in the microscope.

(2 marks)

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(ii) Explain two ecological advantages of specimen W over specimen Y

(2 marks)

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(iii) Explain the advantage of structure of the unit of Y for survival in its habitat.

(3 marks)

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**END**