Name: ……………………………………………. Index No…………………..

P530/3

**Biology Paper 3**

2023

3 hrs. 15 Minutes

UGANDA AINDVANCED CERTIFICATE OF EDUCATION

**END OF YEAR 2023 BIOLOGY PAPER 3**

**3hrs**

***INSTRUCTIONS:***

* ***Answer all questions in this paper***
* ***All answers must be filled in the spaces below***
* ***Drawings must be made in pencil***

|  |  |  |
| --- | --- | --- |
| FOR EXAMINER’S USE ONLY | | |
| Question | Marks | Examiner’s Signature and No. |
| 1. (40 mks) |  |  |
| 2. (32 mks) |  |  |
| 3. (28mks) |  |  |
| TOTAL |  |  |

1. You are provided with specimen T which is a freshly killed toad.
2. With the aid of a thread provided and a ruler, measure the circumference of the mouth and the width of the head from the ventral view. Record your measurements in millimeters.
3. Width of the head …………………………..mm
4. Circumference of the mouth ……………….mm *(02marks)*
5. Explain the significance of the measurements made in (a) above.

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*(04marks)*

1. With the specimen pinned on a dissecting board ventral side up, cut at an angle of the mouth of the specimen and displace the lower jaw to the other side. Examine the structures on the roof of the buccal cavity.
2. Draw the structures on the roof of the buccal cavity and label those that are used in feeding. *(08marks)*
3. Explain how each of the structures labeled in b (i) above adapt the specimen for efficient feeding.  *(03marks)*

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1. Further dissect the specimen to expose the blood vessels in the trunk.

Displace alimentary canal to the right to show blood vessels supplying the alimentary canal and those draining the left head region, lung, skin, limbs and shoulder with heart in the normal position/situ  *(23 marks)*

1. You are provided with specimen N and solution S.
2. Carry out the following instructions:
3. From specimen N cut cubes N1 (1cm x 1cm x 1cm ) and N2 (2cm x 2cm x 2cm)
4. Add 30cm3 of solution S into a beaker and immerse the cubes N1 and N2 . Leave to stand for 1 hour.
5. Enter the information required in table 1 below. Show your method.

*(06marks)*

|  |  |  |
| --- | --- | --- |
|  | Cube N1 | Cube N2 |
| Surface area (A) |  |  |
| Volume (V) |  |  |
| Ratio –A:V |  |  |

1. After 1 hour, remove the cubes from the solutions. Measure the central un colored part of N1 and N2 and note how each cube appears on cutting through.
2. Record your answer below  *(04marks)*

|  |  |  |
| --- | --- | --- |
|  | N1 | N2 |
| Appearance after cutting |  |  |
| Distance of the un colored part in cm. |  |  |

1. Explain the results in the second table  *(08marks)*

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1. Assess the significance of the results of this experiment to organisms of different sizes.  *(04marks)*

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1. Prepare 20cm3 extract from another cube same size as N2.
2. Carry out iodine and Biuret tests on the extract. Record your tests, observations and deductions in table 2 below:  *(08marks)*

|  |  |  |
| --- | --- | --- |
| Tests | Observations | Deductions |
| Iodine test |  |  |
| Biuret test |  |  |

ii) from the results of the food test, what nutritional deficiency disease can specimen N curb. Give one reason. (02marks)

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1. (a) You are provided with specimens P, Q, and R. Examine the specimens using a hand lens. Using your observations, classify the specimens and state a reason in case as indicated in the table.  *(06marks)*

Table

|  |  |  |
| --- | --- | --- |
| Specimens | Phylum | Reason |
| P |  |  |
| Q |  |  |
| R |  |  |

(b). i) Describe the structure of Q. (1.5 marks)

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ii) How is specimen Q adapted for survival in its habitat (03marks)

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c). Remove one leaf from specimen R, draw and label all the parts. (7.5marks)

c). i) Name habitat of P and R with a reason. (04 marks)

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ii) State any 4 differences between specimen P and R. (04 marks)

|  |  |
| --- | --- |
| Specimen P | Specimen R |
|  |  |
|  |  |
|  |  |
|  |  |

iii). State the Ecological importance of specimen specimen Q. (02marks)

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