**END OF TERM TWO 2021 EXAMINATIONS**

**FORM 4 BIOLOGY PAPER 2**

**NAME………………………………………………………………. ADM………………………**

**CLASS…………………………. DATE……………………...**

**231/2**

**BIOLOGY**

**Paper 2**

**Time: 2 Hours**

**INSTRUCTIONS TO CANDIDATES**

* Write your name and Index Number in the spaces provided above.
* This paper consists of **two** sections. Section **A** and section **B.**
* Answer **ALL** questions in section **A** in the spaces provided. In section **B** answer question **6** **(compulsory)** and either question **7** or **8** in the spaces provided after question 8

**For Examiners use only.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Section** | **Question** | **Maximum Score** | **Candidates Score** |
| **A** | **1** | **8** |  |
| **2** | **8** |  |
| **3** | **8** |  |
| **4** | **8** |  |
| **5** | **8** |  |
| **B** | **6** | **20** |  |
| **7** | **20** |  |
| **8** | **20** |  |
|  | **Total score** | **80** |  |

**SECTION A: (40 MARKS)**

**Answer all the questions in this section in the spaces provided**

1. A form one student carried out an experiment using a potato cylinder as shown below

..... Potato cylinder

Solution Y

5mm

5mm

Start of the experiment End of the experiment

Potato cylinder

5.2mm

5mm

Solution X

Start of the experiment End of the experiment

(a) Name the physiological process being investigated (1mk)

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(b) Give the name given to solution X and Y in relation to the potato cell sap

(i) Solution X. (1mk)

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(ii) Solution Y. (1mk)

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(c)Give three roles of the process demonstrated above in plant (3mks)

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(d)Give the property of cell membrane that enables it to carry the following functions

(i) A nerve cell to conduct nerve impulse along the nerve fibre. (1mk)

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(ii)Control movement of substances in and out of the cell (1mk)

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2. (a) Give two features of gill filaments that adapt them to their function (2mks)

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(b) (i) Give two ways in which corona virus is transmitted (2mks)

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(ii) State how the following precautions prevent spread of corona virus

1. Wearing a face mask (1mk)

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1. Washing hands with soap and water (1mk)

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(c) (i)Name the part of the brain that control breathing (1mk)

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(ii)Name the bacteria that causes tuberculosis (1mk)

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3. (i) A farmer planted his bean seeds after the onset of rain, seven days later, none had germinated. Give possible reasons for this observation (3mks)

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(ii) Give two roles of water in seed germination. (2mks)

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(iii) A student observed that when a shoot is cut one feet from the top, it no longer increase in height. Explain possible reasons . (3mks)

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4.Birds and insects have wings for flying but they have different internal structures.

(a) (i)Give the name given to such structures (1mk)

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(ii)Give the type of evolution that leads to development of such structures (1mk)

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(b)Explain the term natural selection as used in biology (2mks)

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(c) (i) A malaria drug called malariaquine is no longer effective for treatment of malaria after being used

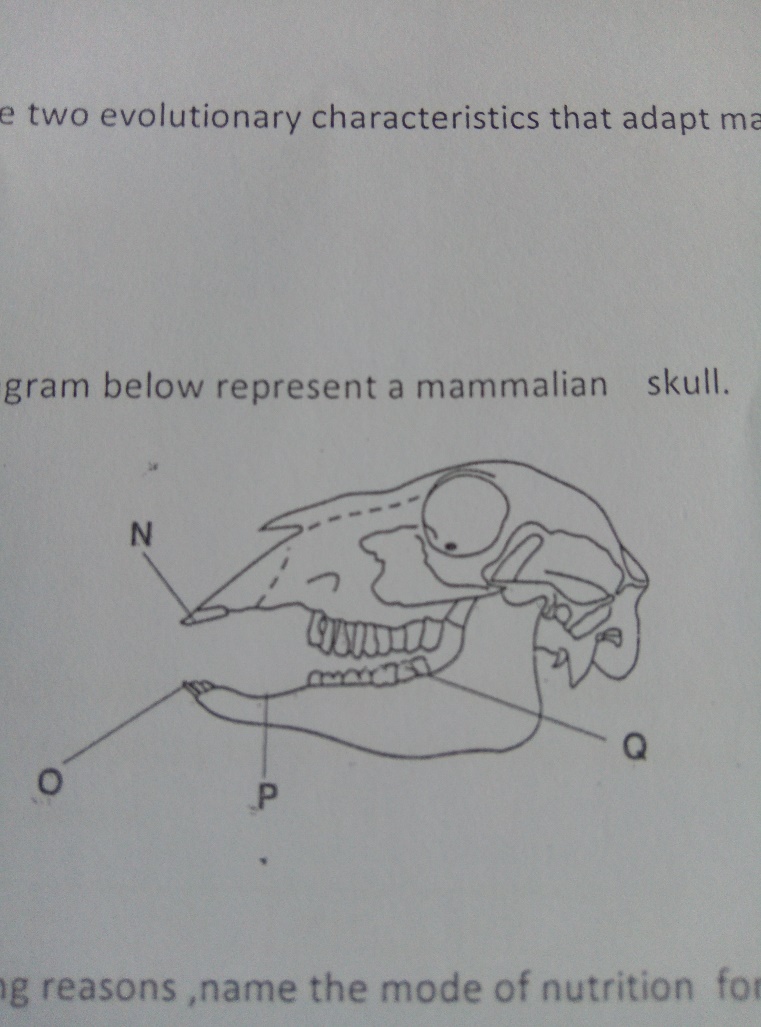
for a long time. Explain possible reasons. (2mks)

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(ii)Give two evolutionary characteristics that adapt man to his environment (2mks)

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5.The diagram below represent a mammalian skull.



(a) (i)Giving reasons, name the mode of nutrition for the animal.

Mode of nutrition. (1mk)

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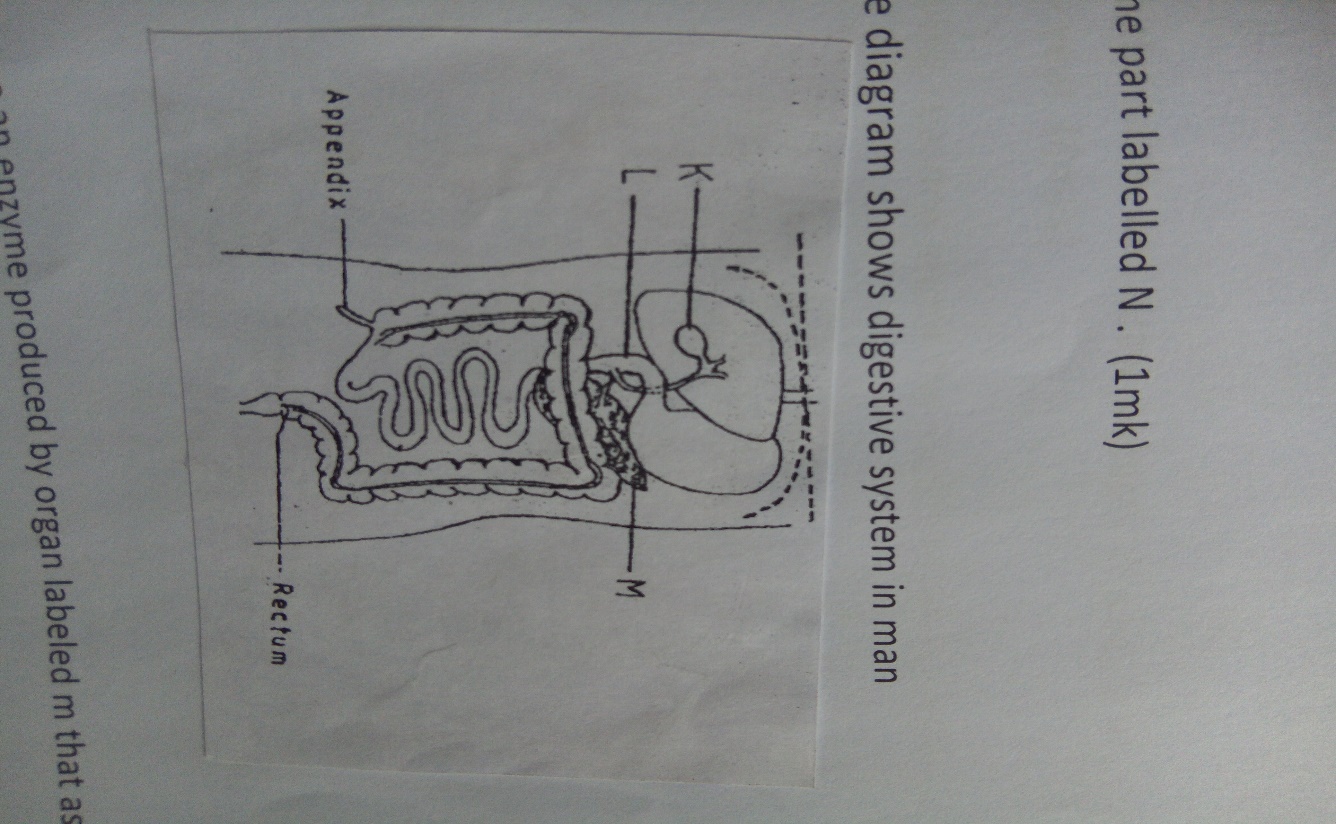
Reasons (2mk)

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(ii)Name part labelled N . (1mk)

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(b) The diagram shows digestive system in man



(i)Name an enzyme produced by organ labeled M that assist in digestion of a piece of

(1) Cassava (1mk)

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(11) Lean meat (1mk)

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(c) (i) Give the function of the juice produced by organ labeled K. (2mks)

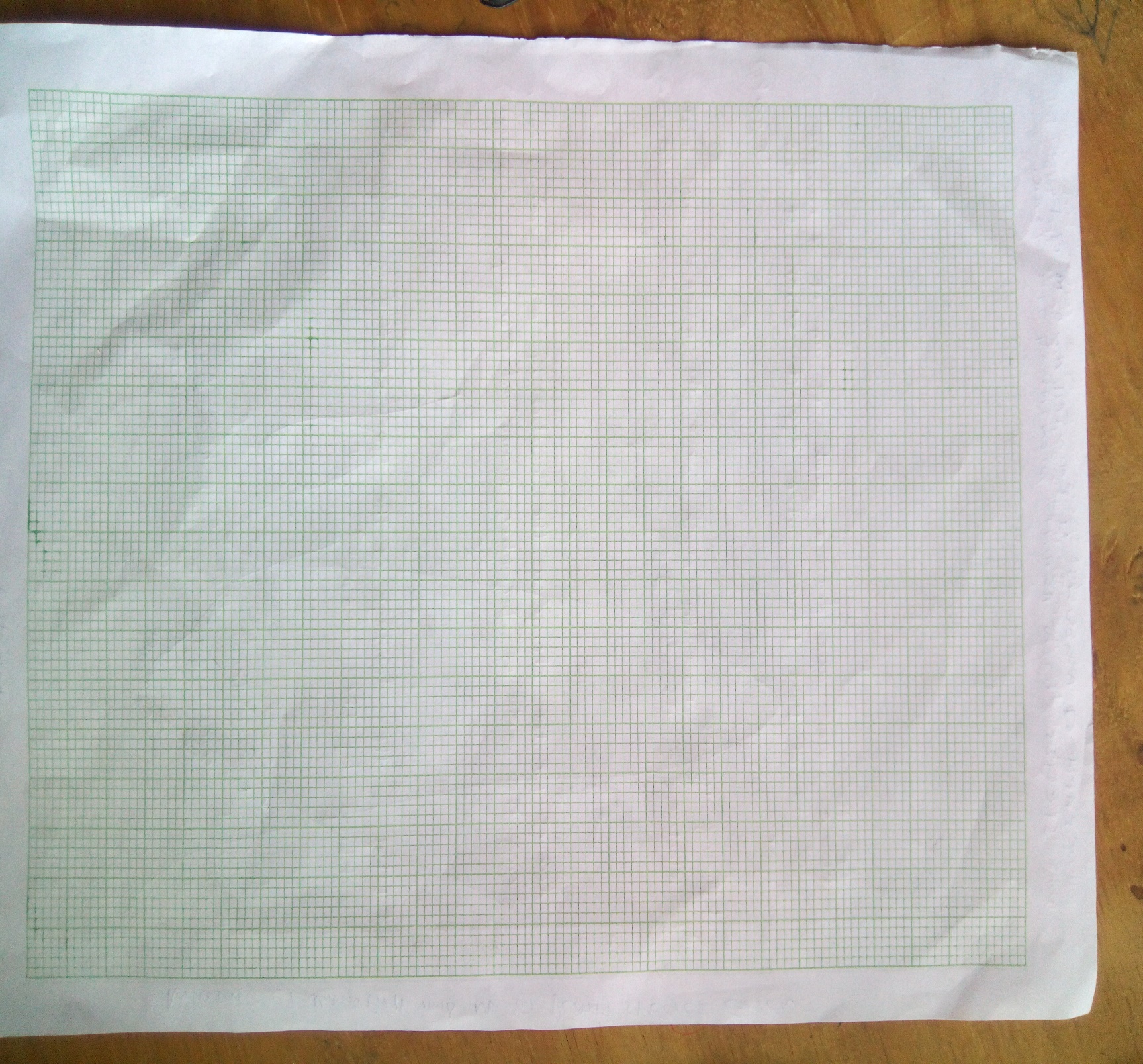
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**SECTION B (40 marks). Answer Question 6 (Compulsory) and Either question 7 or 8**

6. A group of students investigated the relationship between the rainfall pattern and the number of plant species eaten by certain herbivorous mammal throughout the year. The results were as shown in the table below.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Month | Jan | Feb | Mar | April | May | June | July | Aug | Sep | Oct | Nov | Dec |
| Amount of Rainfall (mm) | 12 | 20 | 50 | 120 | 180 | 180 | 160 | 100 | 40 | 60 | 80 | 20 |
| No. of plant species eaten | 120 | 100 | 68 | 50 | 30 | 20 | 30 | 40 | 68 | 60 | 50 | 100 |

(a) On the same axis draw a graph of amount of rainfall and number of plant species eaten against months of the year. (8mks)



(b) Giving reasons ,name the month when the mammal was most selective in its feeding .(3mks)

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(c)Account for the change in the number of plant species eaten during the month of December, January and February.(3mks)

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(d)What is the advantage of the type of feeding behavior exhibited by the mammal? (1mk)

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(e)Suggest two methods that may have been used to determine the plant species eaten by this mammal (2mks)

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(f)Apart from light ,name three environmental factors that would affect carbon (iv)oxide concentration in a given forest .(3mks)

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7.Discuss the practical application of knowledge of genetics (20 mks)

8.Explain how the following types of plants are adapted to their habitat

(i)Xerophytes (13 mks)

(ii)Hydrophytes (7 mks)

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