** MARANDA HIGH SCHOOL**

**Kenya Certificate of Secondary Education**

 **MOCK EXAMINATIONS 2022**

**231/2 Biology (Theory) Paper 2**

 **September, 2022 Time: 2 Hours**

**Name**: ………………………………………….…….…… **Adm** **No**: ………………

**Class**: ………………**Candidate’s** **Signature**: ………..…….. **Date: 13th September, 2022**

 **Time: 7.00-9.00 AM**

 ***Instructions to candidates***

1. *Write all your details in the spaces provided above.*
2. *This paper consists of* ***two*** *sections;* ***A*** *and* ***B****. Answer all the questions in section* ***A*** *in the spaces provided.*
3. *In section B answer question* ***6 (compulsory)*** *and either question 7 or 8 in the spaces provided after question 8.*
4. *This paper consists of* ***11*** *Printed pages.*
5. *Candidates should check the question paper to ensure that all the papers are printed as indicated and no questions are missing.*

**For Examiner’s Use only**

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

* + - 1. The diagram below represents a plant tissue



1. Name the structures L and O. (2 marks)

L…………………………………………………………………………………………………………..

O…………………………………………………………………………………………..........................

1. State the function of structure N and cell labelled M. (2marks)

N…………………………………………………………………………………………………………

M………………………………………………………………………………………………………….

1. Give two structural differences between phloem tissue and xylem tissue. (2marks)

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1. Distinguish between active and passive immunity. (2marks)

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* + - 1. he following figures represent the forelimb of a certain animal species. Study them and answer the questions that follow



1. Name the bones labelled E and G. (2marks)

E…………………………………………………………………………………………..........................

G………………………………………………………………………………..........................................

1. State the type of skeleton represented by figure 1. (1mark)

………………………………………………………………………………………………..........................

1. Name the type of joint at point Q. (1mark)

………………………………………………………………………………………………………………

1. Which two figures represent analogous structures? (1mark)

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. Give **adaptational** differences between structures in figure 1 and 3. (3 marks)

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1. Colour blindness is a disorder caused by gene mutation and it is controlled by a recessive gene. A man with normal colour vision marries a carrier woman:
2. Using letter **B** to represent the gene for **normal color vision**, what is the chance that their son will be colour blind? Show your working. (4marks)

1. Name another trait in humans inherited in the same way as colour blindness. (1mark)

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1. Briefly describe inversion in gene mutation. (1mark)

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1. Distinguish between back cross and testcross. (2marks)

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1. a) Nitrogen in the atmosphere cannot be directly utilized by plants. State two ways by which this nitrogen is made available for plant use. (2marks)

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1. State the importance of saprophytic bacteria in the environment. (1mark)

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1. Briefly explain the how excessive use of fertilizers affects the large water bodies. (3marks)

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1. Explain how competition regulates the animal population in a habitat. (2marks)

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1. The figure below shows the parts of the human digestive system. Study it and answer the questions that follow.



1. Name the organs labelled A, B and D. (3marks)

A……………………………………………………………………………………………………………...

B……………………………………………………………………………………………………………...

D……………………………………………………………………………………………………………...

1. State the role of part labelled C. (1mark)

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1. Name the two salivary glands in human beings. (2marks)

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1. Give two adaptations of part labelled D to its function. (2marks)

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1. An experiment was carried out to investigate transpiration and absorption of water in sunflower plants in their natural environment with adequate supply of water. The amount of water was determined in a two hour intervals. The results are as shown in the table below.

|  |  |
| --- | --- |
| **TIME OF THE DAY** | **AMOUNT OF WATER IN GRAMMES** |
|  | **Transpiration** | **Absorption** |
| 11:00-13:00 | 33 | 20 |
| 13:00-15:00 | 45 | 30 |
| 15:00-17:00 | 52 | 42 |
| 17:00-19:00 | 46 | 46 |
| 19:00-21:00 | 25 | 32 |
| 21:00-23:00 | 16 | 20 |
| 23:00-01:00 | 8 | 15 |
| 01:00-03:00 | 4 | 11 |

1. Using the same axes, plot graphs to show transpiration and absorption of water in grammes against time of the day. (7marks)
2.  At time of the day was the amount of water the same for transpiration and absorption? (1 mark)

………………………………………………………………………………………………………………..

1. Account for the shape of the graph of :
2. transpiration (3marks)

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. absorption (3marks)

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. What would happen to transpiration and absorption of water if the experiment was continued till 0500 hours? (2marks)

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1. Name two environmental factors that may affect rate of transpiration and absorption at any given time.

 (2marks)

………………………………………………………………………………………………………………………………………………………………………………………………………………………………

1. Explain how the factors you named in (e) above affect transpiration. (2marks)

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1. a) Explain how blood sugar is regulated in the human body. (12marks)
2. Explain the adaptation of the mammalian skin to thermoregulation. (8marks)
3. a) Describe the factors that make the leaf of a terrestrial plant to absorb maximum light for photosynthesis. (12marks)
4. Describe how support is achieved in herbaceous plants and shrubs. (8marks)

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