**Name** …………………………………………….…… **Class** ………. **Index No**. ………………/……..

**231/2 Candidate’s Signature** …….…….……..……...

**BIOLOGY**

**Paper 2 Date** ………...………..

**(Theory)**

**June/ July, 2013**

2 hours

**Kenya Certificate of Secondary Education**

**MOCK EXAMINATIONS 2013**

***Instructions to candidates***

1. *Write your name, class and index number in the spaces provided above.*
2. *Sign and write the date of examination in the spaces provided above.*
3. *This paper consists of* ***two*** *sections:* ***A*** *and* ***B****.*
4. *Answer* ***ALL*** *the questions in section* ***A*** *in the spaces provided.*
5. *In section* ***B*** *answer* ***question******7 (compulsory)*** *and* ***either******question 8 OR question 9*** *in the spaces*

 *provided after question* ***9***

**For Examiner’s Use Only**

|  |  |  |  |
| --- | --- | --- | --- |
|  **Section** | **Question** |  **Maximum**  **Score** |  **Candidate’s**  **Score** |
|  **A** |  **1** |  **10** |  |
|  **2** |  **9** |  |
|  **3** |  **8** |  |
|  **4** |  **6** |  |
|  **5** |  **7** |  |
|  **B** |  **6** |  **20** |  |
|  **7/8** |  **20** |  |
| **Total Score** |  **80** |  |

**This paper consists of 10 printed pages.**

**Candidates should check the question paper to ascertain that**

**all the pages are printed as indicated and no questions are missing.**

**Section A (40 marks)**

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

1. A rooster with grey feathers was mated with a hen of the same phenotype. Among their offspring, 15 chicks were grey, 6 were black and 8 were white
2. Give an explanation for the appearance of the black and white feather colours in the offspring of the chicken **(2 marks)**

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1. What feather colours would one predict from the mating of a grey rooster and a black hen? Show your workings **(5 marks)**

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1. The diagram below illustrates a part of the mammalian alimentary canal



1. **(i)** Identify the organ labelled **B (1 mark)**

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 **(ii)** Name **two** secretions of the organ labelled **B** **(2 marks)**

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1. Name each of the parts labelled **A** and **D (2 marks)**

**A** …………………………………………………………………………………………….

**D** …………………………………………………………………………………………….

1. State **one** function of the part labelled **C** **(1 mark)**

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1. Explain why the part labelled **E** is curved **(1 mark)**

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1. The diagram below shows a transverse section of a certain part of an angiosperm. Study the diagram carefully and answer the questions that follow

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1. With a reason, name the part of the plant from which the section was made **(2 marks)**

**Part of plant** ………………………………………………………………………………..

**Reason** …………………………………………………………………………………………………..

1. Name each of the parts labelled **C** and **D (2 marks)**

 **C** …………………………………………………………………………………………….

 **D** …………………………………………………………………………………………….

1. Name the tissue labelled **B** **(1 mark)**

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1. **(i)** Name the class of angiospermae of the plant from which the specimen was obtained

**(1 mark)**

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**(ii)** Give **one** reason for your answer in **(a)** above **(1 mark)**

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1. The diagrams below illustrate two types of neurones and associated structures. Study the diagrams carefully and answer the questions that follow

 



1. **(i)** Identify the type of neurones illustrated in diagrams **N1** and **N2** **(2 marks)**

**N1** …………………………………………………………………………………………….

**N2** …………………………………………………………………………………………….

**(ii)** Provide **two** reasons for your identity of the neurone in diagram **N1 (2 marks)**

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1. Name each of the structures labelled **X** and **Y** in diagram **N1** **(2 marks)**

**N1** …………………………………………………………………………………………….

**N2** …………………………………………………………………………………………….

1. Give the general name of the type of cell at position **Z** in diagram **N1 (1 mark)**

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1. Give the general name of the material in position **W** in diagram **N1 (1 mark)**

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

1. Alongside diagram **N2** and by means of an arrow, indicate the direction of flow of the nerve impulse **(1 mark)**

1. **(a)** State **two** merits of air as a respiratory medium, as compared with water **(2 marks)**

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1. Illustrated below is a part of the gas exchange structures in the grasshopper (*Gastrimagus sp.*). Study the illustration carefully and answer the questions that follow



1. Name each of the parts labelled **G1** and **G2** **(2 marks)**

**G1** …………………………………………………………………………………………….

**G2** …………………………………………………………………………………………….

1. Describe **four** adaptive features of the structures labelled **G3** to their function **(4 marks)**

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1. Illustrated below is germination in a certain plant raised from a seed. Study the illustrations carefully and answer the questions that follow

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 **D1- Day 0 D2- Day 5 D3- Day 10 D4- Day 15**

1. Label the hypocotyl in diagram **D3 (1 mark)**
2. Other than the position of the hypocotyl, give **one** other reason why this is an example of epigeal germination **(1 mark)**

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**Section B (40 marks)**

***Answer question 7 (COMPULSORY) in this section in the spaces provided and EITHER question 8 OR question 9 in the spaces provided after question 8***

1. **(a)** Distinguish between each of the following ecological phenomena
2. Habitat and Niche **(2 marks)**

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1. Grazer and Browser **(2 marks)**

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**(b)** In a study on interactions between populations, two protozoa- *Paramecium caudatum* and

*Paramecium aurelia* were grown in the same culture medium under laboratory conditions. The

results of the experiment were as shown in the table below

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Time (hours)** |  **0** |  **2** |  **4** |  **6** |  **8** |  **10** |  **12** |  **14** |  **16** |
| **Relative** **numbers** | *P. aurelia* |  2 |  54 |  88 | 105 | 112 | 116 | 118 | 119 | 119 |
| *P. caudatum* |  2 |  30 |  48 |  38 |  18 |  8 |  3 |  1 |  1 |

Display the results above suitably on the graph paper provided **(8 marks)**

1. **(i)** Name the biological phenomenon illustrated by the results of this experiment

**(1 mark)**

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**(ii)** At what time did the phenomenon in **(c)(i)** above begin? Show this on the graph

**(2 marks)**

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**(iii)** Explain your answer in **(c)(ii)** above **(3 marks)**

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1. What would have been the population of*Paramecium caudatum* at 17 hours? **(2 marks)**

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1. **(a)** Describe the various evidence for organic evolution **(10 marks)**

**(b)** Using appropriate illustrations, outline the mode of action of auxins, with regard to each of

 the following processes **(10 marks)**

1. Phototropism
2. Geotropism
3. Describe how the human male reproductive system is adapted to its functions **(20 marks)**

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