**NAME ………………………………………… INDEX NO …….…………………..**

**SCHOOL ………………………………………… SIGNATURE …………..……....…….**

 **DATE ……………….………..**

**231/2**

**BIOLOGY**

**PAPER 2**

**(THEORY)**

**JULY/AUGUST, 2014**

**2 HOURS**

**MAKINDU DISTRICT INTER – SECONDARY SCHOOLS EXAMINATION**

***Kenya Certificate of Secondary Education (K.C.S.E)***

**231/2**

**BIOLOGY**

**PAPER 2**

**(THEORY)**

**JULY/AUGUST, 2014**

**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
* This paper consists of 11 Printed pages. Candidates should check the question paper to ensure that all the papers are printed as indicated and no questions are missing

**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** |  |

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231/2

Biology

Paper 2 (Theory)

1. a) What is diffusion (2marks)

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1. How do the following factors affect the rate of diffusion?
	* 1. Diffusion gradient (1mark)

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* + 1. Surface area volume ratio (1mark)

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 iii.Temperatures (1mark)

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c) Outline three roles of active transport in human body? (3marks)

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1. a) Give the differences between the following structures in wind and insect pollinated flowers? (3marks)
2. Anther

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1. Pollen grains

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1. Stigma

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b) What is the importance of pollination (1mark)

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c) Explain how a seed is formed after an ovule is fertilized (4marks)

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1. A cross between a red flowered plant and white flowered plant produces plants with pink flowers .Using letter R to represent the gene for red colour and W for white colour,
2. What were the parental genotypes? (1mark)

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1. Work out a cross between F1 plants. (4marks)

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1. Give the phenotypic ratio of F2 plants

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1. Genotypic ratio of F2 plants (1mark)

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1. Name a characteristic in humans which is controlled by multiple alleles (1mark)

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1. The diagram below shows a vertical section through a mammalian heart.



1. Name the parts labeled A, B, E, and F (4marks)

 A.............................................................................................................................

 B.............................................................................................................................

 E..............................................................................................................................

 F..............................................................................................................................

1. Use arrows to show the direction in which blood flows in the heart (2marks)
2. Give a reason why the wall of chamber C is thicker than chamber D (2marks)

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1. What is the difference between Darwinian and Lamarckian theories of evolution (2marks)

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1. What is meant by the following terms. Give an example in each case.
2. Homologous structures (1mark)

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 Example

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1. Analogous structures (1mark)

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 Example

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1. Vestigial structures (1mark)

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 Example

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 **SECTION B**

 **Answer question 6(compulsory) in the spaces provided and either question 7 or 8 in the spaces provided after 8.**

1. During germination and growth of a cereal, the dry weight of endosperm, the embryo and the total dry weight were determined at two day intervals. The results are shown in the table below:

|  |  |  |  |
| --- | --- | --- | --- |
| Time after planting (days) | Dry weight of endosperm (mg) | Dry weight of embryo (mg) | Total dry weight (mg) |
| 0 | 43 | 2 | 45 |
| 2 | 40 | 2 | 42 |
| 4 | 33 | 7 | 40 |
| 6 | 20 | 17 | 37 |
| 8 | 10 | 25 | 35 |
| 10 | 6 | 33 | 39 |

1. Using the same axes, draw graphs of dry weight of endosperm, embryo and the total dry weight against time. (7marks)





1. What was the total dry weight on day 5 (1mark)

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1. Account for
2. Decrease in dry weight of endosperm from 0 to 10 (2marks)

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1. Increase in dry weight of embryo from day 0 to day 10 (2marks)

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1. Decrease in total dry weight from day 0 to day 8 (1mark)

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1. Increase in total dry weight after day 8 (1mark)

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1. State two factors within the seed and two outside the seed that cause dormancy
2. Within the seed. (2marks)

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1. Outside the seed (2marks)

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1. Give two characteristics of meristematic cells (2marks)

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1. Describe how the human kidney functions (20marks)
2. Explain how abiotic factors affect plants. (20marks)

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