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

 **Date……………………Sign …………….**

**231/2**

**BIOLOGY**

**PAPER 2 (THEORY)**

**MAY 2014**

**2 HOURS**

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

**INSTRUCTIONS**

1. This paper consists of two sections A and B. Answer **All** the questions in section A in the spaces provided.
2. In section B answer questions 6 (**Compulsory**) and either Questions 7 or 8 in the spaces provided.

**FOR EXAMINER’S USE ONLY**

|  |  |  |  |
| --- | --- | --- | --- |
| **SECTION** | **QUESTION** | **MAXIMUM SCORE** | **CANDIDIATE’S****SCORE** |
| A | 1 | 8 |  |
| 2 | 8 |  |
| 3 | 8 |  |
| 4 | 8 |  |
| 5 | 8 |  |
| B | 6 | 20 |  |
| 7 | 20 |  |
| 8 | 20 |  |
| **TOTAL SCORE** |  | **80** |  |

***This paper consists of 11 printed pages. Candidates should check carefully***

***to ascertain that all the pages are printed as indicated and no questions are missing***

SECTION A (40 MARKS)

*Answer all the questions in this section in the spaces provided after each question.*

1. The diagrams below represent two plant cells A and B placed in two different solutions. Study the diagrams and answer questions that follow:

 

1. Identify the nature of solution into which each cell was placed. (2mk)

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

B ………………………………………………………………………………………

1. Name the physiological process responsible for the observed results. (1mk)

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c) Give the correct biological term used to describe cell A. (1mk)

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1. Describe what would happen if a red blood cell was placed in the solution in which cell B was placed. (2mk)

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1. Explain why freshwater amoeba do not burst when placed in distilled water. (2mk)

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1. a) What is meant by the term linked genes? (1mk)

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b). Haemophilia is a genetic condition transmitted through a recessive gene linked to X

 chromosome. The normal gene may be represented by XH.

1. What is the genotype of a haemophilic female? (1mk)

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1. A woman who is a carrier for the haemophilia gene marries a normal man. Work out the phenotypic ratio for their offspring. (4mk)

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1. Haemophilia is more common in males than in females. Explain this phenomenon. (2mk)

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1. Study the diagram below and answer questions that follow.



1. Identify the parts labeled E, F and H. (3mk)

E………………………………………………………………………………………

F………………………………………………………………………………………

H………………………………………………………………………………………

1. State the importance of the process represented by G in bodies of living organisms.

 (2mk)

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1. Compare the composition of blood in vessel E and H. (3mk)

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1. Use the figure below to answer questions that follow:

 

1. Identify the division to which the specimen belongs. (1mk)

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1. Name the parts labeled M, N and P. (3mk)

M………………………………………………………………………………………N………………………………………………………………………………………

P ……………………………………………………………………………………..

1. Name the spore producing structures that constitute the part labeled S. (1mk)

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1. Identify three features that distinguish the specimen above from higher plants. (3mk)

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1. a) Name the plant organs in which meiosis take place. (2mk)

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1. Identify the figure below. (1mk)

 

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1. Using the diagram, explain the meaning of double fertilization in flowering plants.

 (1mk)

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1. What happens to the structure above after fertilization? (1mk)

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1. State three adaptations of fruits to animal dispersal. (3mk)

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SECTION B (40 MARKS)

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

1. A study was carried out to investigate the distribution of certain mammals in a game reserve with three distinct habitats. The results were as presented in the graph below.

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1. Suggest a suitable method that could have been used to obtain the data from the three habitats. (1mk)

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1. Suggest three reasons why all mammalian species were found in the wooded grassland. (3mk)

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1. From the data, suggest the feeding habits of:
2. Wildebeest. (3mk)

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1. Lesser kudu. (3mk)

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1. The vegetation in this game reserve was destroyed by fire. Two weeks after the onset of rains, most of the animals were found in the grassland. Explain. (4mk)

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1. Name three environmental factors that are necessary for growth of vegetation other than rain. (3mk)

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1. For each of the factors, briefly explain its importance. (3mk)

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1. a) Describe how water molecules are absorbed from the soil and moves to the leaves in a tree. (10mk)

 b) Describe the mechanism of inhalation in human beings. (10mk)

1. a) Describe adaptations of the reproductive system of a male mammal to its function. (10mk)

b) Explain how the following vertebrae are adapted to their function. (10mk)

 (i) Cervical vertebra.

 (ii) Thoracic vertebra.

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