Name:…………………………………………. Index Number:…... …….………….

Adm. No……………….. Class: ………… Candidate’s Signature: ………………….

Date: ……………………………………..

231/2

**BIOLOGY**

**Theory**

Paper 2

Sept/Oct, 2024

Time: 2 Hours

**MOI GIRLS’ HIGH SCHOOL - ELDORET**

**K.C.S.E. TRIAL EXAMINATIONS**

231/2

Biology

Paper 2

Sept/Oct, 2024

***Instructions To Candidates***

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

**FOR EXAMINER’S USE ONLY**

|  |  |  |  |
| --- | --- | --- | --- |
| **Section** | **Question** | **Maximum score** | **Candidate’s score** |
| A | 1 | 08 |  |
| 2 | 08 |  |
| 3 | 08 |  |
| 4 | 08 |  |
| 5 | 08 |  |
| B | 6 | 20 |  |
| 7 | 20 |  |
| 8 | 20 |  |
| **TOTAL SCORE 80** | | | |

**SECTION A: (40 Marks)**

1. Study the diagram below.

A

Glucose + Fructose Substance X + water

B

a)i) Give the identity of substance X (1 mark)

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ii) Suggest a name for the enzyme that catalyzes process B (1 mark)

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iii) Name process A. (1 mark)

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b) Name a bond between two carbohydrate molecules (1 mark)

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c) Give the building units of proteins (1 mark)

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d) Give **three** functions of lipids (3 marks)

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

1. What leads to the build up of pressure in the part labelled A (2 marks)

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1. With a reason, state two components that are absent in the fluid part B but present in part A (3 marks)

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1. Identify the substance that is reabsorbed in the part labelled C (1 mark)

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1. Name **two** hormones that regulate the reabsorption of substances in the structure above. (2 marks)

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3. Study the diagrams below and answer the questions that follow.

1. Identify phase J and K (2 marks)

J ...........................................................................................................................

K ..........................................................................................................................

1. Describe the activities that takes place in J (3 marks)

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1. How can part labelled X lead to chromatids formation (1 mark)

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1. State **two** significance of the type of cell division in part J (2 marks)

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4. The diagram below represents a simple reflex arc in human.

1. Name the neurons labelled X and Y (2 marks)

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b)i) Name the gap labelled Y (1 mark)

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ii) Explain how a nerve impulse is transmitted across the gap named in b(i) above (4 marks)

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c) On the diagram indicate the direction of nerve impulse (1 mark)

5. a) Name **two** support tissues in plants and in each case give the strengthening tissue. (2 marks)

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1. Apart from plants using strengthening tissue to obtain support list down other **two** ways plants use to obtain support (2 marks)

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1. State **two** ways through which plants compensate for their inability to move.

(2 marks)

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1. Explain how herbaceous plants acquire support (2 marks)

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**SECTION B: (40 Marks)**

6. In an ecological study, a grasshopper population and that of crows was estimated in a certain grassland area over a period of one year. The results are as shown in the table below.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Month | J | F | M | A | M | J | J | A | S | O | N | D |
| No. of grasshoppers x102 | 90 | 20 | 11 | 23 | 2500 | 1625 | 120 | 15 | 10 | 35 | 192 | 456 |
| No. of crows | 4 | 2 | 0 | 1 | 8 | 22 | 7 | 2 | 1 | 1 | 5 | 2 |
| Amount of rainfall | 20 | 0 | 55 | 350 | 520 | 350 | 12 | 10 | 25 | 190 | 2 | 3 |

a)i) What is the relationship between the rainfall and grasshopper population?

(1 mark)

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ii) Account for the relationship stated in a(i) above (3 marks)

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b) Explain the relationship between the grasshopper population and that of the crows. (3 marks)

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c) If the data was used in the construction of pyramid of numbers, what would be the trophic level of; (3 marks)

(i) Grasshopper ………………………………………………………….

(ii) Crows ………………………………………………………………..

(iii) The grass in the study area …………………………………………..

d) If the area studied was one square kilometer, state:

(i) One method that could have been used to estimate the crow population.

(1 mark)

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(ii) One method that could have been used to estimate the grasshopper population (1 mark)

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e) Suggest what would happen if predator for grasshoppers entered the study area. (2 marks)

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f) What is meant by the term carrying capacity (1 mark)

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g) What would the carrying capacity of wild animals in woodland grassland be higher than that of cattle. (2 marks)

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h) What is an ecosystem? (3 marks)

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7. a) Discuss potassium ion theory in gaseous exchange in plants (10 marks)

b) Describe various ways in which a human body protects itself from infection. (10 marks)

8. Explain formation of webbed feet

1. In Ducks using Lamark and Darwin theory (12 marks)
2. Identify different ways in which mammalian ear is adapted to its function

(8 marks)

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