GENERAL CERTIFICATE OF EDUCATION (GCE) BOARD

General Certificate of Education Examination

BIOLOGY 2
0510

JUNE 2021 **ORDINARY LEVEL**

Subject Title	**BIOLOGY**
Paper No.	**2**
Subject Code No.	**0510**

Two hours

Answer ALL FIVE questions.

All questions carry 20 marks each. For your guidance, the approximate mark for each part of a question is indicated in brackets.

Begin the answer to each question on a new page.

Give labelled diagrams where these will make the answers clearer.

You are advised to read carefully through the question paper before you begin your answers.

You are reminded of the necessity for good English and orderly presentation in your answers.

In calculations, you are advised to show all the steps in your working, giving your answer at each stage.

1. (a) What are enzymes? **(4 marks)**

   (b) List 5 characteristics of enzymes. **(5 marks)**

   (c) What is the importance of proteins to man? **(6 marks)**

   (d) How would you demonstrate that soaked maize grains contain reducing sugar? **(5 marks)**

(Total = 20 marks)

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2. (a) Draw a large labelled diagram to show a section through the mammalian skin. **(8 marks)**

   (b) How does the skin function in

   (i) Protection **(5 marks)**

   (ii) Secretion **(2 marks)**

   (iii) Temperature regulation during over cooling. **(5 marks)**

(Total = 20 marks)

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3. (a) Distinguish between the following pairs of terms.

   (i) Diploid and Haploid

   (ii) Gamete and Zygote. **(4 marks)**

   (b) A poultry farmer crossed pure breed white fowls with pure breed black fowls and all offspring were blue. When two of these blue fowls were crossed; it was observed that out of the 492 F_2 fowls produced, 121 were black , 125 were white and 246 were blue.

   (i) Using appropriate genetic symbols and diagrams, explain the genetics of the crosses. **(12 marks)**

   (ii) What is the expected result of a cross between a blue and black fowl? **(4 marks)**

(Total =20 marks)

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4. (a) What do you understand by the following terms?

   (i) Biotechnology.

   (ii) Genetic engineering

   (iii) Plasmids. **(9 marks)**

   (b) How is genetic engineering useful to man? **(6 marks)**

   (c) Outline the steps involved in beer making. **(5 marks)**

(Total =20 marks)

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5. (a) Draw a large labelled diagram of the male reproductive system. **(8 marks)**

   (b) Define the following;

   (i) Reproduction.

   (ii) Fertilization.

   (iii) Pollination.

   (iv) Copulation. **(8 marks)**

   (c) Where does meiosis occur in

   (i) Flowering plants.

   (ii) Mammals. **(4 marks)**

(Total = 20 marks)