

# GENERAL CERTIFICATE OF EDUCATION BOARD

General Certificate of Education Examination

**BIOLOGY 2**

**0510**

**JUNE 2023**

**ORDINARY LEVEL**

Subject Title	<b>BIOLOGY</b>
Paper No.	<b>2</b>
Subject Code No.	<b>0510</b>

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**Two and half hours**

*Answer FIVE questions, ALL THREE (3) from SECTION A and any TWO (2) from SECTION B*

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

*Begin 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.*

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**SECTION A**  
**Answer ALL 3 questions**

1. (a) Draw a Spirogyra cell to show its features. (5 marks)  
 (b) Give the functions of any four parts labelled. (4 marks)  
 (c) How is Spirogyra different from an Amoeba? (6 marks)  
 (d) What will happen if a marine amoeba is put in a fresh water environment? (5 marks)

(Total = 20 marks)

2. (a) Describe an experiment to measure the rate of water uptake by a leafy shoot. (9 marks)  
 (b) Explain how **three (3)** environmental factors affect the rate of transpiration. (6 marks)  
 (c) Tabulate the differences between a dicotyledonous stem and a monocotyledonous stem? (5 marks)

(Total = 20 marks)

3. (a) Define the following terms as used in ecology:  
 (i) Pollutant. (2,2 marks)  
 (ii) Afforestation. (5 marks)  
 (b) State the harmful effects of bush burning. (6 marks)  
 (c) Describe the flow of energy in nature. (6 marks)  
 (d) During a bush burning exercise, the quantity of carbon dioxide released was estimated and measured at regular intervals as shown in the table below.

Time/minutes	0	5	15	25	30	35
CO <sub>2</sub> /litres	0	10	30	80	70	50

Draw a graph to represent this information. From the graph, determine the amount of carbon dioxide that will be released during the 10<sup>th</sup> minute. (5 marks)

(Total =20 marks)

**SECTION B**

**Answer any 2 questions**

4. (a) Draw a neatly labelled diagram to show the position of endocrine glands in a male mammal. (6 marks)  
 (b) State the functions of the mammalian skeleton. (8 marks)  
 (c) Describe what happens when the hand touches a hot object? (6 marks)

(Total =20 marks)

5. (a) Draw a large labelled diagram of the longitudinal section through the mammalian heart, showing the direction of blood flow. (13 marks)  
 (b) Describe the functions of the major components of blood. (7 marks)

(Total =20 marks)

6. (a) Make a large labelled diagram of the male reproductive system of a mammal. (8 marks)  
 (b) What is meant by:  
 (i) Ovulation,  
 (ii) Fertilization,  
 (iii) Pollination? (2,3,3 marks)  
 (c) Bring out four (4) differences between an insect pollinated flower and a wind pollinated flower. (4 marks)

(Total =20 marks)

7. (a) What is holozoic nutrition? (2 marks)  
 (b) How is the ileum adapted for absorption of soluble food? (8 marks)  
 (c) Copy and complete the table below

Vitamin/mineral	Source	deficiency	function
Vitamin A			Proper vision
	Milk, meat etc.	Ricket's	
Iron		Anaemia	
	Oranges, grapes, limes etc.		Prevents bleeding gums
Calcium			Helps in muscle contraction

(10 marks)

(Total =20 marks)

**GO BACK AND CHECK YOUR WORK**