

Biology 2
0710

GENERAL CERTIFICATE OF EDUCATION BOARD
General Certificate of Education Examination

JUNE 2025

ADVANCED LEVEL

Subject Title	Biology
Paper No./Title	Paper 2 Theory
Subject Code No.	0710

Duration: Three Hours

Answer any FIVE out of the eight questions.

If more than five questions are answered, only the first five will be marked.

All questions carry equal marks. Marks allocated to parts of questions are indicated in brackets.

Illustrate your answers wherever desirable with large, clear and fully labelled diagrams.

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

Calculators are Allowed

Turn Over

1.
 - (a) Describe the Watson and Crick structure of DNA.
 - (b) Why is starch molecule a convenient storage form of Carbohydrates in plants?
 - (c) Distinguish between:
 - (i) Glycogen and Starch.
 - (ii) Phospholipids and Triglycerides.

(10, 2, 8 marks)
(Total = 20 marks)

2.
 - (a) How is the morphology and anatomy of the leaf of a maize plant adapted to photosynthesis?
 - (b) Define the following terms:
 - (i) Action spectrum.
 - (ii) Absorption spectrum.
 - (c) Describe the role played by photosynthetic pigments in the light dependent phase of photosynthesis.

(8, 2, 2, 8 marks)
(Total = 20 marks)

3.
 - (a) One of the primary functions of blood is to transport respiratory gases. Describe how blood picks up and transports carbon dioxide in mammals.
 - (b)
 - (i) What do you understand by the cardiac cycle?
 - (ii) How is the cardiac cycle brought about?
 - (c) What is the role of hormones in regulating heartbeat?

(7, 6, 4, 3 marks)
(Total = 20 marks)

4.
 - (a) Briefly describe the following processes that take place during the transmission of an impulse:
 - (i) Resting potential.
 - (ii) Action potential.
 - (iii) Threshold of stimulation.
 - (iv) Repolarization.
 - (v) Absolute refractory period.
 - (vi) Saltatory conduction.
 - (b) Using suitable illustrations, describe the mechanism of impulse transmission across the synapse.

(12, 8 marks)
(Total = 20 marks)

5.
 - (a) Define the following terms:
 - i) Homeostasis.
 - ii) Osmoregulation.
 - (b) Explain the role played by the following hormones in homeostasis:
 - i) Insulin.
 - ii) Calcitonin.
 - iii) Antidiuretic hormone (ADH).
 - (c) Why do mammals produce large quantities of urine during fright?

(4, 12, 4 marks)
(Total = 20 marks)

6. A male aphid homozygous for grey coloured body and long wings was crossed with a female aphid homozygous for white coloured body and short wings. All the 150 offspring obtained possessed grey body and long wings. When the F_1 males were mated with females having the female parents' genetic makeup, they produced the following offspring:

- 205 aphids with grey body and long wings
- 16 aphids with grey body and short wings
- 17 aphids with white body and long wings
- 201 aphids with white body and short wings

- (a) Using suitable genetic symbols, explain these crosses giving the genotypes, phenotypes and proportions of these in the parents and offspring.
- (b) (i) Calculate the Cross over Value (CoV) for the two traits involved.
- (ii) What is the significance of a cross over value (CoV) .

(14, 4, 2 marks)

(Total = 20 marks)

7. Limbe is a sea site resort town in the South West Region of Cameroon. Every year the city of Limbe attracts many tourists, because of its touristic sites like the botanical garden, the slave village and the sea. Limbe is also host to the only oil refinery in Cameroon. For the past 5 years the city has been experiencing severe floods and the quality of drinking water has been greatly affected. Some tourists have also complained about the dirty nature of the beach. They say the beach is becoming very dark in colour and it is also full of debris.

- (a) Outline six human activities that can be responsible for the pollution of water bodies in Limbe.
- (b) Propose six measures to the Limbe city council to prevent water pollution in Limbe.
- (c) What methods of purification can be used by households in Limbe to purify their water?
- (d) What measures can be used to conserve the Limbe Botanical Garden?

(6, 6, 4, 4 marks)

(Total =20 marks)

8. (a) Explain the following terms:
- (i). Biotechnology.
- (ii). Genetic Engineering.
- (b) State four characteristics of restriction enzymes.
- (c) Describe the processes by which a copy of the required gene can be obtained in genetic engineering.
- (d) State two disadvantages of genetic engineering.

(6, 4, 8, 2 marks)

(Total =20 marks)