

BIOLOGY 2
0710

GENERAL CERTIFICATE OF EDUCATION (GCE) BOARD

General Certificate of Education Examination

gcerevision.com

JUNE 2021

ADVANCED LEVEL

Subject Title	BIOLOGY
Paper No./Title	2 - Theory
Subject Code No.	0710

<http://www.gcerevision.com>

THREE HOURS

Answer any FIVE out of the eight questions.

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

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.

Turn Over

JUNE 2021/0710/2/B/Q

© 2021GCEB

gcerevision.com

1. (a) Make a fully labeled drawing of the stomach of a named ruminant.
(b) Briefly describe how a named herbivore is adapted for mechanical and chemical digestion of cellulose.
(c) How are the products of cellulose digestion absorbed and used?
- (8, 8, 4 marks)
(Total = 20 marks)
-

2. (a) Explain the following terms as used in reproduction.
(i) Pathernogenesis.
(ii) Capacitation.
(iii) Cortical reaction.
(iv) Ovulation.
(b) Describe the process of spermatogenesis in Humans.
(c) How is spermatogenesis hormonally controlled in Humans?
- (8, 7, 5 marks)
(Total = 20 marks)
-

3. (a) What are pollutants? Give three examples.
(b) Describe briefly the hazards of water and air pollution.
(c) Differentiate between biodegradable and non-biodegradable pollutants giving at least one example of each.
- (6, 10, 4 marks)
(Total = 20 marks)
-

4. (a) Outline:
(i) Mendel's First Law of inheritance.
(ii) Mendel's Second Law of inheritance.
(b) Explain, using appropriate genetic symbols, the possible blood groups of children whose father is heterozygote blood group A and mother heterozygote blood group B.
(c) If these parents have two children, what is the probability that both will have blood group A?
- (4, 14, 2 marks)
(Total = 20 marks)
-

5. Nucleic acids (DNA and RNA) are important components in the synthesis of proteins in living organisms.
(a) Compare DNA and RNA.
(b) Describe the events that occur in the translation of mRNA into polypeptides in cells.
- (8, 12 marks)
(Total = 20 marks)
-

6. (a) Make a large fully labeled drawing of the cross-section of the human eye.
(b) Identify the problems involved in the following eye defects and their methods of correction :
(i) Long-sightedness (Hypermetropia).
(ii) Short-sightedness (Myopia).
(c) Explain the mechanism of color vision in humans.

(7, 8, 5 marks)
(Total = 20 marks)

7. (a) Outline the mechanism of the uptake of the following by plants:
(i) water,
(ii) inorganic ions.
(b) How are organic substances transported and used in flowering plants?

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

8. (a) What is genetic engineering?
(b) Use a flow diagram to show some of the key stages which are typically involved in setting up a biotechnological process
(c) What are the advantages in using microorganisms as a food source?

(5, 10, 5 marks)
(Total = 20 marks)
