

THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL
ADVANCED CERTIFICATE OF SECONDARY EDUCATION EXAMINATION
MAY 1995

133/1

BIOLOGY PAPER 1
(For both School and Private Candidates)

TIME : 2½ Hours.

1. Answer FIVE (5) questions including at least ONE question from each of sections A, B, C and D.
2. Read each question carefully.
3. Write your centre and index number on every page of your answer book.
4. Except for diagrams, which must be drawn in pencil, all writing must be in blue or black ink/ball point pen.
5. Each question carries 20 marks.

This paper consists of 3 printed pages.

SECTION A

1. (a) With the aid of diagrams describe the structure and functions of the following cell organelles.
- (i) Golgi apparatus
 - (ii) Chloroplast
- (b) The table below shows relative amounts of DNA in a cell of organism X measured during mitosis and meiosis.

Table 1 : Relative amounts in organism X

Cell Division	Phase of nuclear cycle	DNA Content
	Early Interphase	2
Mitosis	Metaphase	4
	Late Telophase	2
Meiosis 1	Zygotene	4
Meiosis 2	Late Telophase	1

- (i) Account for the differences in DNA content among the different phases.
 - (ii) What would be the probable amount of DNA content in late Telophase I and Prophase II of meiosis? Explain.
2. (a) Distinguish between exocrine and endocrine glands.
- (b) Discuss with examples the structure of the major types of the exocrine glands in mammals.

SECTION B

3. (a) What are the similarities and differences between bryophytes and pteridophytes?
- (b) What do you understand by the term "Alternation of generations"? Discuss the significance of alternation of generations to the life histories of plants.
4. Justify the position of Homo sapiens in the phylum Chordata and class Mammalia.

SECTION C

5. Discuss the process of water absorption by roots and the movement of water from the roots to the leaves.

6. State the changes which take place in the organs named below and discuss their importance during the fight - or -flight responses.
- (i) Heart
 - (ii) Liver
 - (iii) Lungs
 - (iv) Skin
 - (v) Skeletal muscles
 - (vi) Alimentary canal
 - (vii) Eyes
7. Discuss the roles of the following chemicals in organisms.
- (i) Water
 - (ii) Carbohydrates

SECTION D

8. (a) How may a species be defined by
- (i) A Genetist
 - (ii) An Evolutionist
 - (iii) An ecologist ?
- (b) Discuss the relationship between biotic potential and environmental resistance.
9. Maua is a form six student with blood type A. She recently had a baby with blood type O, whose father she insisted was a fellow student called Kasheshe. Kasheshe refused outright. This paternity case was taken to court where the following facts were established.
- (i) Kasheshe's mother was of blood type A
 - (ii) Kasheshe's father was of blood type B

Would the law accuse or excuse Kasheshe ? Use symbolized diagrams to show how you reach your conclusion.