

THE UNITED REPUBLIC OF TANZANIA  
NATIONAL EXAMINATIONS COUNCIL  
ADVANCED CERTIFICATE OF SECONDARY EDUCATION  
EXAMINATION - MAY, 1991

133/1

BIOLOGY PAPER 1

(For both School and Private Candidates)

TIME: 2½ Hours.

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IMPORTANT

The following instructions must be strictly adhered to.  
Failure to do so may lead to loss of marks.

1. Answer FIVE questions including at least ONE question from each of the 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 all writing must be in blue or black ink/ball point pen.

This paper consists of 2 printed pages.

### SECTION A

1. (a) Give labelled drawings to show the appearance of an animal cell at each of the following stages of division.
  - (i) Pachytene
  - (ii) Diplotene
  - (iii) Metaphase 1 of meiosis
  - (iv) Metaphase of mitosis.
- (b) Briefly describe the events taking place at each of the stages in Q. 1(a) above.
2. (a) Draw large labelled diagrams of tissue arrangement in a dicotyledenous stem and root in primary state of growth.
- (b) With the help of diagrams describe the structure and function of xylem and phloem tissues.

### SECTION B

3. Compare the life cycle of a fern with that of a moss.
4. Giving one example in each case, describe the main features that are used to place organisms into each of the following groups:- Protozoa, Arthropoda, Aschilminthes, Monocotyledonae and Dicotyledonae.

### SECTION C

5. "Asexual reproduction produces offspring identical with parent, whereas sexual reproduction produces variation". Discuss these statements.
6. What is the role of the liver and pancreas in
  - (i) digestion?
  - (ii) metabolism of the end products of digestion?

### SECTION D

7. (a) Mrs Lutu has two haemophilic sons and two normal sons. What is her genotype and that of her husband with respect to this gene? Explain your answer.
- (b) Giving reasons, explain whether Mrs Lutu could have a haemophilic daughter.
8. (a) How does a mammal obtain and lose water?
- (b) In what forms is nitrogen excreted in animals?
9. (a) What do you understand by the following as used in evolution?
  - (i) Law of use and disuse
  - (ii) Convergent evolution.
- (b) How do the following bring about speciation?
  - (i) Adaptive radiation
  - (ii) Genetic variability.