

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

133/1

**BIOLOGY 1**  
(For Both School and Private Candidates)

**Time: 3 Hours**

**Thursday, 8<sup>th</sup> May 2014 a.m.**

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**Instructions**

1. This paper consists of **eleven (11)** questions in sections A and B.
2. Answer **all** questions in sections A and **three (3)** questions from section B.
3. The marks allocation for each question is indicated in each section.
4. Except for diagrams that must be drawn in pencil, all writing should be in blue or black ink.
5. Cellular phones are **not** allowed in the examination room.
6. Write your **Examination Number** on every page of your answer booklet(s).

## SECTION A (55 marks)

Answer all questions in this section.

All questions carry 8 marks except question three (3) which carries 7 marks.

1. (a) Briefly explain the functions of the vascular system in plants.  
(b) Explain the processes involved in transportation of water from the soil to the xylem.
2. (a) Define the following terms:  
(i) Photoautotrophs  
(ii) Chemoheterotrophs  
(b) What would be the effect of lowering oxygen concentration on the following:  
(i) C<sub>3</sub> photosynthesis  
(ii) C<sub>4</sub> photosynthesis  
(c) (i) Why is it an advantage that bundle sheath chloroplasts lack grana?  
(ii) What would happen to the activities of intestinal enzymes if the pH in intestine remains at 2?
3. (a) What is glycolysis?  
(b) In what ways are fermentation processes useful to human beings?
4. (a) Account for the birth of the following babies:  
(i) Identical twins  
(ii) Fraternal twins  
(iii) Conjoined twins  
(b) Outline one feature for each of the births in 4(a) above.
5. (a) By using examples classify cells into two major groups. Give four features for each group to justify your answers.  
(b) Outline three advantages of the presence of membranes in cell organelles.
6. (a) What do you understand by the term Taxonomic Key as used in Biology?  
(b) Explain how to construct and use a Dichotomous Key.
7. (a) Distinguish nastic movements from tactic movements in living organisms. Give one example in each case.  
(b) Explain the importance of tropic movement in plants.

Answer **three (3)** questions in this section. Each question carries **fifteen (15)** marks.

8. (a) Describe the tertiary structure of protein?  
(b) Elaborate six categories of protein basing on their functions.
9. Explain the seven roles of synapse.
10. (a) Describe the internal structure of the mammalian lung. Illustrate your answer.  
(b) Why it is **not** advisable to warm the room at night by using charcoals while people are sleeping in the house and both door and windows are closed?
11. (a) State three disadvantages of a closed as compared to an open circulatory system.  
(b) Describe foetal blood circulation in human being.