

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

133/2

**BIOLOGY 2**  
(For Both School and Private Candidates)

**Time: 3 Hours**

**Tuesday, 10<sup>th</sup> May 2016 p.m.**

**Instructions**

1. This paper consists of **eight (8)** questions in sections A, B, C and D.
2. Answer five questions by choosing at least **one (1)** question from each section.
3. Each question carries **twenty (20)** marks.
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

Answer at least **one (1)** question from this section.

- Give five reasons to justify the class to which cockroach belongs.
  - Using examples, explain seven advantages of insects to human being.
- Using diagrams and one example in each case, classify bacteria on the basis of their morphology.

## SECTION B

Answer at least **one (1)** question from this section.

- Explain four major roles of the kidney.
  - Describe the structure of mammalian nephron.
- Explain different ways used by endotherms to keep their body temperature constant.

## SECTION C

Answer at least **one (1)** question from this section.

- Explain the following types of growth; give one example in each case.
    - Intermittent growth
    - Allometric growth
    - Isometric growth
    - Limited growth
    - Unlimited growth.
  - State the roles of the following factors in seed germination.
    - Water
    - Air
    - Optimum temperature.
- In guinea pig (*Cavia*), there are two alleles for hair colour, black and white, and two alleles for hair length, short and long. In a breeding experiment all  $F_1$  phenotypes produced from a cross between pure-breeding short-black haired and pure-breeding, long white-haired parents had short black hair.
  - Which alleles are dominant? Give reason for your answer.
  - Use cross diagrams to show both  $F_1$  and  $F_2$  results.

## SECTION D

Answer at least **one (1)** question from this section.

7. Explain how different abiotic factors affect population distribution.
8. Describe types of communities (Biomes) and their global distribution.

*2011*  
*2012*  
*2013*  
*2014*