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

133/2 **BIOLOGY 2**

(For Both School and Private Candidates)

Time: 3 Hours **Friday, 10th May 2019 a.m.**

Instructions

1. This paper consists of sections A, B, C and D with a total of **eight (8)** questions.
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 and any unauthorised materials are **not** allowed in the examination room.
6. Write your **Examination Number** on every page of your answer booklet(s).

SECTION A

COMPARATIVE STUDY OF NATURAL GROUPS OF ORGANISMS

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

1. Using examples, explain five advantages and disadvantages of Kingdom Fungi to human being.

2. (a) Draw a diagram of a bacteriophage and label six parts.

   (b) Viruses pose problem in identification as they possess characteristics of both living and non-living things. Justify this statement by stating four living and three non-living characteristics of the viruses.

SECTION B

REGULATION AND GROWTH AND DEVELOPMENT

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

3. (a) With the help of a diagram, describe the formation and removal of urea in mammalian liver.

   (b) (i) Identify the major excretory products in the vertebrates.
   (ii) For each excretory product identified in 3 (b) (i), state their nature and give one example of an organism which excretes it.

4. (a) With the aid of diagram, describe growth curve pattern of a pea plant.

   (b) Outline five causes of seed dormancy.

SECTION C

GENETICS

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

5. (a) (i) Explain two roles of deoxyribonucleic acid.
   (ii) Describe chemical composition of deoxyribonucleic acid.

   (b) Describe four properties of genetic materials.

6. In cats, the genes controlling the coat colour are carried on the X chromosomes and are codominant. A black – coat female mated with a ginger-coat male produced offspring consisting of black male and tortoiseshell female kittens. What is the expected F_2 phenotypic ratio? Explain the results.

SECTION D

EVOLUTION AND ECOLOGY

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

7. (a) Briefly explain how each of the following human activities affects the flow of energy in the ecosystem.
   (i) Poaching.
   (ii) Deforestation.

   (b) Describe seven biotic factors which affect population distribution.

8. (a) Enumerate six essential features of natural selection as put forward by Charles Darwin.

   (b) Describe how geographical, reproductive and genetic isolations bring about speciation.