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, 13th May 2014 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.

1. (a) Describe the structural adaptations of *Entamoeba spp.*

   (b) Explain the advantages of algae to human being and other living things.

2. (a) Account for the general characteristics of the Phylum Apicomplexa.

   (b) Describe the life cycle of *Plasmodium falciparum* and the effects it causes to its host.

SECTION B

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

3. (a) A father with blood group A and a mother of blood group B (both heterozygous) have four children. What is the probability that, the children will have blood group A?

   (b) In the experiment conducted on pure-breeding varieties of oats, one with black-hulled grains and the other with white –hulled grains, the offspring (F1) all had black- hulled grains. When F1 generation were crossed gave F2 generation with the following phenotype:
   (i) 418-black-hulled grains,
   (ii) 106- grey-hulled grains and
   (iii) 36- white-hulled grains.

   Use the punnet square to show the gametes, genotype and phenotypes in each generation and suggest the genetic ratio.

4. (a) Elaborate Mendel's work in genetics by considering his success and failures.

   (b) Show the probability of having haemophiliac children when a carrier haemophiliac woman marries a normal man.

SECTION C

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

5. (a) Explain how mitosis is significant in living organisms.

   (b) With reference to housefly and grasshopper, describe in detail the process of metamorphosis in each.

6. Describe how mammals are adapted to warm environment.

SECTION D

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

7. (a) Describe the two types of competition and briefly explain why intraspecific competition is density dependent.

   (b) Explain six ways in which excess intraspecific competition is avoided among organisms in the ecosystem.

8. Elaborate how primary and secondary ecological successions take place.