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

133/2

BIOLOGY 2

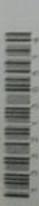
(For Both School and Private Candidates)

Time: 3 Hours

Tuesday, 13th May 2014 p.m.

Instructions

- I. 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.
- 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.
 - (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.

- (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.
- Elaborate how primary and secondary ecological successions take place.