THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL
DIPLOMA IN SECONDARY EDUCATION EXAMINATION

BIOLOGY 1

341

Time: 3 Hours

Friday, 08th May 2015 a.m.

Instructions

This paper consists of sections A, B and C.

Answer **all** questions in sections A and **two (2)** questions from each of sections B and C.

Section A and B carries 30 marks each and sections C carries 40 marks.

Cellular phones are **not** allowed in the examination room.

Write your **Examination Number** on every page of your answer booklet(s).

SECTION A (30 Marks)

Answer **all** questions in this section.

1. Briefly explain the following:
   (a) Continuous variation.
   (b) Natural selection.
   (c) Artificial selection.

2. Distinguish between the following:
   (a) Essential amino acids and non-essential amino acids.
   (b) α-glucose and β-glucose

3. Deduce why enzymes are specific and are not consumed during a reaction.

4. State three uses of a syllabus in the teaching and learning process.

5. List three points to consider when constructing a Dichotomous identification Key.

6. Distinguish between the following by giving one relevant example for each:
   (a) Natural active immunity and artificial passive immunity.
   (b) Natural passive immunity and artificial passive immunity.

7. In three points, briefly describe how you can guide Form One students at your school to prepa themselves effectively for a Biology test.

8. Working in a laboratory entail a great care. Briefly explain three precautions to be taken by teacher in order to make a Biology laboratory a safe place to work in.

9. State where you can collect the following specimens for laboratory use.
   (i) Planktons (ii) Moulds (iii) Liverworts.

10. For effective study of Biology, students should have some basic skills. Outline at least thr skills that a Biology student needs to develop in the course of studying Biology.

SECTION B (30 Marks)

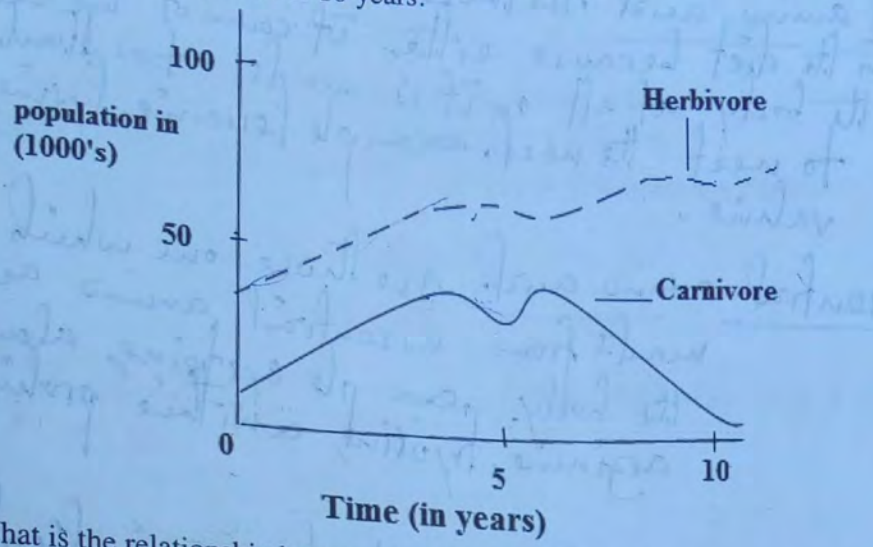
Answer **two (2)** questions from this section.

11. (a) With the aid of a diagram describe the mechanism of DNA replication.
    (b) Justify the statement that "DNA replication is semi-conservative".

12. Signify why classification of fungi and viruses are found to have great challenges compared t other groups of organisms.

13. (a) Explain the role played by each of the following in the release of energy during aerobic respiration:
    (i) Oxygen (ii) Mitochondria (iii) Glucose.
    (b) Give a summary of electron transport system. (Diagram not necessary).
    (c) Describe four uses of ATP in a metabolically active cell.

14. (a) The following graph shows the relationship between co-existing populations of herbivores and their predators for a period of 10 years.



(i) What is the relationship between the population of herbivores and carnivores between 0 and 3 years?

(ii) Give possible reasons for the decrease in carnivore population between 5th and 10th year and increase of herbivore population between 7th and 10th year.

(iii) Suggest the reasons that may cause decline in herbivore population after the 10th year.

(b) (i) Describe six adaptive features of endoparasites.

(ii) Describe how light, temperature and atmospheric pressure affect distribution of organisms in an ecosystem.

SECTION C (40 Marks)

Answer **two (2)** questions from this section.

15. Most students hate studying science subjects. As a biology teacher explain how your teaching can motivate form one students to like studying Biology subject. (Give six points).

16. Explain how you can assist students in the following accidents during practical session;
(a) Some pieces of broken test-tubes have entered into a student's eye.
(b) A student has suffered an electric shock.

17. (a) Biological models are effective for teaching and learning some biology concepts. Justify the statement by giving five points.
(b) Suppose you have planned to use a "human kidney" model in teaching a sub-topic "excretion in human" to a form three class. Explain how you will effectively use the model during classroom instruction (give five points).

18. (a) In six points explain what would happen if a biology teacher uses a syllabus direct for teaching without preparing a scheme of work?
(b) Explain four importance of preparing lesson notes to biology teachers.