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

BIOLOGY 1

733/1

Time: 3 Hours **Friday, 10th May 2013 a.m.**

Instructions

1. This paper consists of sections A, B and C.
2. Answer **all** questions in sections A, **two (2)** questions from section B and **two (2)** questions from section C.
3. Section A carries 30 marks, section B carries 30 marks and section C carries 40 marks.
4. Cellular phones are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).

BIO

SECTION A (30 Marks)

Answer **all** questions in this section.

1. State six ways in which a Biologist can avoid accidents in a laboratory.
2. (a) What is the role of T-cell in the immune response?
   (b) Give short explanation on how the skin protect the body against infections.
3. (a) Briefly explain what would happen if group A blood is transfused into a person with group B or O blood.
   (b) Name the two types of mutation. — Gene & chromosomal mutation
4. Give three differences between glycolysis and fermentation.
5. List six major components of a Biology teacher's guide.
6. Give three properties that account for the DNA's suitability as a material for heredity. ① Evidence from bacteria ② Evidence from virus ③ Results of Griffith's experiments
7. Compare and contrast alcoholic fermentation in yeast cells and lactic fermentation in vertebrate muscle cell during strenuous activity.
8. Outline six things that are likely to occur if a Biology teacher goes into a class to teach Biology without preparations.
9. Briefly explain six uses of scheme of work in teaching and learning.
10. Analyze the importance of a syllabus as one of the curriculum material in teaching and learning Biology.

SECTION B (30 Marks)

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

11. Describe seven methods that can be used in conservation of the endangered species in the ecosystem.
12. (a) State four rules of binomial nomenclature.
    (b) Explain six economic importance of bacteria in our daily life.

13. (a) What is protein denaturation?
(b) Analyze four factors which may cause protein denaturation.
(c) Describe the four structures of protein.

14. Elaborate any five causes and two control measures of drug abuse among adolescents in Tanzania.

SECTION C (40 Marks)

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

15. (a) Standard acids in the laboratory are prepared from concentrated acids. If you were provided with commercial (HCl), standard base (Na_2CO_3), $500cm^3$ conical flask and a measuring cylinder; Show the procedures you will use to prepare 0.1M HCl.

(b) You need to prepare 0.1M HCl for 200 students, where each student is allowed to take 250 cm^3 of the solution. Commercial sample of conc. HCl has the following information:

Density of acid mixture = $1.8g/cm^3$
Molar mass =36.5g/mol.
Percentage by composition by mass =36%

Show all the apparatus you will use, precautions you will take and necessary calculations you will follow to prepare the required solution.

16. Success of the Biology teaching and learning process depends on well stated instructional (specific) objectives.

(a) State five characteristics of a well stated instructional objective.

(b) Explain two roles of well stated specific objectives in teaching and learning Biology.

(c) Prepare three questions that need to be asked by a Biology teacher when thinking to write a lesson plan on the importance of studying Biology.

17. (a) Describe four assessment tools which can be used in assessing form four students in Biology subject.

(b) Enumerate four points to justify the essence of preparing a marking scheme for marking a Biology test.

18. (a) Explain four ways you can use to improve students' participation in Biology practical.

(b) Elaborate four importance of assessing student's progress in academic achievements.