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

033/1 **BIOLOGY 1**

(For Both School and Private Candidates)

Time: 3 Hours **Tuesday, 05th November 2019 a.m.**

Instructions

1. This paper consists of sections A, B and C with a total of **fifteen (15)** questions.
2. Answer **all** questions in sections A and B and **two (2)** questions from section C of which question 13 is compulsory..
3. All writing should be in **blue** or **black** ink, except for diagrams that must be drawn in pencil.
4. Cellular phones and any unauthorised materials are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).

SECTION A (15 Marks)

Answer **all** questions in this section.

1. For each of the items (i) - (x), choose the correct answer among the given alternatives and write its letter beside the item number in the answer booklet provided.

(i) What is the aim of doing an experiment when conducting a scientific investigation?

A Identifying a problem
B Finding a solution
C Testing a hypothesis
D Gathering information
E Recording results

(ii) Why is it advised to build an incinerator in every hospital and health centre?

A for collecting wastes.
B for disposing gaseous wastes.
C for disposing liquid wastes.
D for burning hazardous wastes.
E for disposing plastic wastes.

(iii) Mrs. Juma's child has protruding stomach and swollen lower limbs. What type of food should she give to her child to overcome the problem?

A Starch
B Lipids
C Proteins
D Minerals
E Vitamins

(iv) In the food chain: Grass → Zebra → Lion. A lion is

A a primary consumer.
B a secondary consumer.
C a producer.
D a tertiary consumer.
E a decomposer.

(v) Water from the roots of flowering plants is transported up to the plant by different forces. Which of the following forces initiates and raises water to the least height?

A Root pressure
B Transpiration pull
C Cohesion forces
D Adhesion forces
E Capillarity

(vi) A patient has been diagnosed with low level of blood sugar. Which hormone would you recommend to regulate the victim's sugar?

A Insulin
B Glucagon
C Antidiuretic
D Aldosterone
E Testosterone

(vii) Which one is the feature of aging in human beings?

A Shorter reaction times
B Strong bones
C Strong muscles
D Body increases in size
E Wrinkling of the skin

(viii) What is the role of node of ranvier in a neurone?
A To transmit the impulses away from the cell body.
B To insulate the axon and speed up transmission of impulses.
C To transmit nerve impulses from one nerve to another.
D To speed up the transmission of nerve impulses.
E To transmit the nerve impulses towards the cell body.

(ix) What is variation as applied to genetics?
A Differences among individuals of the related species.
B Differences among individuals of the same species.
C Differences among individuals of different species.
D Differences among individuals of unrelated species.
E Differences among individuals of the expected species.

(x) Which one is correct about Cosmozian theory of origin of life?
A Life was brought in this Earth from elsewhere.
B Life arose according to physical and chemical laws.
C Living organisms arose from non-living materials
D The Earth and all organisms on it were created by God.
E The planet Earth and all the organisms have always been there.

2. Match the functions of components of the skeleton in **List A** with their corresponding components of the skeleton in **List B** by writing the letter of the correct response beside the item number in the answer booklet provided.

LIST A	**LIST B**
(i) Axial component which protects the delicate internal organs such as lungs and the heart. (ii) Axial component which protects the brain and provide area for attachment of the neck. (iii) Appendicular component which provides a large surface area for muscle attachment and a base for articulation with hind limbs. (iv) Axial component which protects the spinal cord. (v) Appendicular component which provides a large surface area for muscle attachment and a base for articulation with upper arm bones.	A Pivot B Vertebral column C Lumbar D Pelvic girdle E Cervical F Rib cage G Skull H Pectoral girdle

SECTION B (60 Marks)

Answer **all** questions in this section.

3. In the Biology laboratory there are different apparatuses and equipment used for conducting experiments. Draw the apparatus used for:

   (a) putting specimens for close observation.

   (b) grinding or crushing substances in the laboratory.

   (c) adding liquids during an experiment drop by drop.

   (d) scooping powder or crystalline substances.

4. It has been observed that some people dispose wastes around the lake which supplies water to the surrounding communities. Briefly explain three problems which are likely to happen to the area.

5. What are the differences between the nervous system and endocrine system? Give three points.

6. Jairus complains of having burning sensation around the chest region.

   (a) What digestive disorder is he facing?

   (b) Give five measures he should take to treat the disorder.

7. **Figure 1** represents an external structure of a hibiscus flower. Study it carefully and answer the questions that follow:

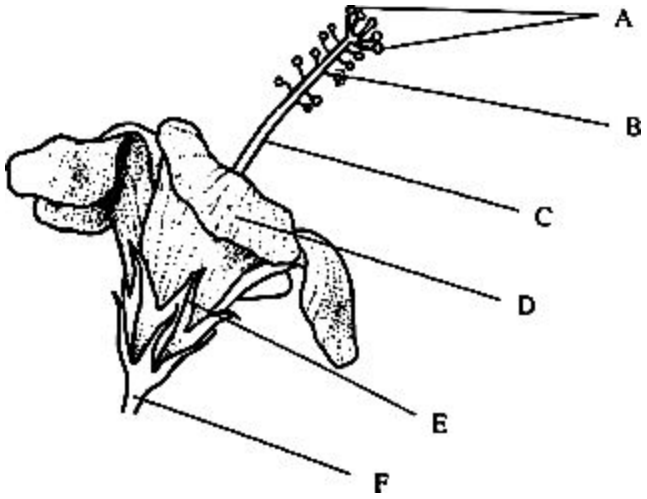

Figure 1

   (a) Name the parts labeled **A**, **B**, **C**, **D**, **E**, and **F**.

   (b) What are the functions of the parts labeled **B**, **D** and **E**?

8. Ringing in plants involves removal of the bark of the tree. This hinders communication between the upper and lower parts of the plant. In three points, briefly elaborate the impact of ringing on the stem of a hibiscus plant.

9. How are the respiratory surfaces adapted to their role? Give four points.

10. (a) Give two differences between a cell membrane and a cell wall.

    (b) Why is cell differentiation important to living organisms? Give a reason.

11. Consider that you are a medical doctor and you have received a patient whose investigation has diagnosed kidney stones. Suggest to the patient three possible causes and three control measures for kidney stones.

12. Reptiles are organisms whose body temperature is affected by environmental temperature. Briefly explain three ways that help reptiles to survive in different weather conditions.

SECTION C (25 Marks)

Answer **two (2)** questions from this section. Question **13** is compulsory.

13. You are invited by a Fema CLub of a certain secondary school as a health officer. Explain how you will educate members of Fema Club on the cause, symptoms and transmission of HIV/AIDS. Give five symptoms and four ways of transmitting the disease. **(15 marks)**

14. A majority of people believe that all fungi are harmful organisms. As a biologist, explain four ways in which fungi are beneficial to human beings. **(10 marks)**

15. Why is the study of genetics important in our daily life? Explain by giving four points. **(10 marks)**