

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

133/1

BIOLOGY 1

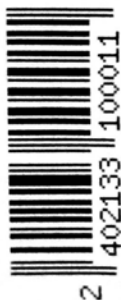
(For Both School and Private Candidates)

Time: 3 Hours

Year: 2024

Instructions

1. This paper consists of sections A and B with a total of **ten (10)** questions.
2. Answer **all** questions in section A and **two (2)** questions from section B.
3. Section A carries **seventy (70)** marks and section B carries **thirty (30)** marks.
4. All writing must be in **blue** or **black** ink, **except** drawings which must be in pencil.
5. Communication devices and any unauthorised materials are **not** allowed in the examination room.
6. Write your **Examination Number** on every page of your answer booklet(s).



SECTION A (70 Marks)

Answer **all** questions in this section. Each question carries **ten (10)** marks.

1. (a) A Form Five student was provided with a sample containing globular protein to identify its features. Which five features did the student identify?
(b) Denatured protein molecules lose both their three dimension structure and functions. Explain five ways which you would use to prevent denaturation.
2. (a) Explain how water is used in each of the following processes in human body:
(i) Transportation
(ii) Removal of wastes
(iii) Secretion
(iv) Hearing and balance
(b) Use one point in each case to justify the need for animal cells to possess each of the following organelles/structures.
(i) Peroxisomes
(ii) Lysosomes
(iii) Rough endoplasmic reticulum
(iv) Glycocalyx
3. (a) Draw a diagram of a synapse and label its four parts.
(b) Use four points to show how the structure of a synapse is adapted for transmission of impulse.
4. (a) Anaerobic respiration is a wasteful process especially in animal cells where it produces only 2 ATP from breakdown of a glucose molecule. Propose a way in which the process can be prevented.
(b) Evaluate the number of ATP produced in each stage of respiration (Glycolysis, Krebs' cycle and Electron transport chain) when a glucose molecule is completely oxidized to make a total of 38 ATP.
5. (a) A woman gave birth to three babies in a single pregnancy (triplets). The two babies were genetically identical while one was different. She wondered how it was possible. In seven points, explain how the triplets resulted.
(b) In mammals, giving birth involves three processes namely; dilation of cervix, expulsion of the foetus with the head first and expulsion of the placenta. Give an importance of each stage.
6. (a) Use five points to show the importance of classifying organisms.
(b) Use five points to support the statement that, artificial system of classification is not preferred by scientists.

7. (a) Hydrochloric acid is one of the components of gastric juice produced by the stomach wall during digestion of food. Give seven points to show its importance in digestion of food in human being.
- (b) Give three points to justify the need for secretion of mucus in the stomach epithelial and gastric glands.

SECTION B (30 Marks)

Answer **two (2)** questions in this section. Each question carries **fifteen (15)** marks.

8. Describe the process of water uptake from the soil to the xylem.
9. A certain couple stayed together for ten consecutive years and wishes to have children but they could not. Explain the possible causes of the problem for each partner.
10. Draw a diagram to show the path taken by the air from the nose to the alveolar and explain six adaptations of alveoli for gaseous exchange.