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)

Duration: 3 Hours **Year: 2025**

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.

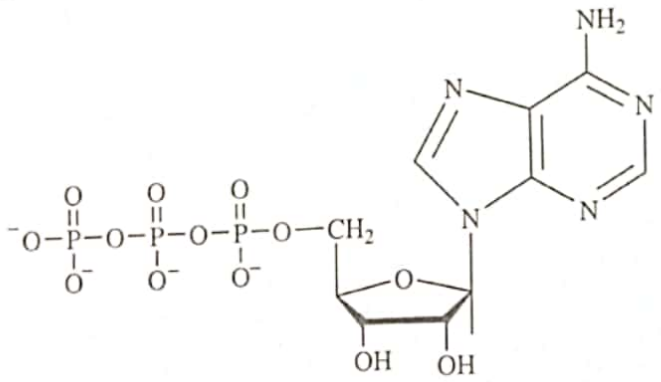
1. (a) Briefly explain how each of the following features of a mitochondrion helps in breaking down food to release energy:
   (i) Folded inner membrane
   (ii) Matrix
   (iii) Circular DNA
   (iv) Ribosomes

   (b) State two importance of each of the following organelles:
   (i) Microtubules
   (ii) Golgi body
   (iii) Lysosomes

2. (a) Analyse five differences between yeast cells and bacterium cells.

   (b) Using two points, justify the need for a plant cell to have a vacuole.

3. (a) Study the structure of the molecule shown in the given figure and answer the questions that follow:



   (i) Identify the molecule.
   (ii) Explain three ways in which the molecule is important in human body.

   (b) Analyse four features that are shared by gills and lungs.

4. Draw well labelled diagrams to show the arrangement of neurons for transmitting impulse from receptor to the effector.

5. Differentiate spermatogenesis from oogenesis based on the following aspects:
   (a) Specific site of occurrence
   (b) Number of cells formed

(c) Result of cytoplasmic division during meiotic I and meiotic II
(d) Size of cell formed
(e) Transformation of the cells formed

6. With the help of a diagram, explain how a 6 carbon compound is converted to two molecules of a 3 carbon compound in respiration.

7. (a) Evaluate the rate of respiration based on each of the following criteria:
   (i) Size of organisms
   (ii) Age of organisms
   (iii) Health condition of organisms
   (iv) Body temperature

   (b) Justify the fact that when the same amount of lipid and glucose is respired, lipid releases more energy than glucose.

8. (a) Analyse four features which are found in the virus but not in bacterium cell.

   (b) Viruses have merits and demerits in human life. Justify this statement by giving two merits and demerits.

SECTION B (30 Marks)

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

9. Osmosis and diffusion are ways for transporting materials in living organisms. Evaluate four benefits of each way to living organisms.

10. In four points, justify the fact that "animals cannot survival without plants."

11. With the aid of a diagram, describe the life cycle of a bryophyte.