



TANZANIA HEADS OF ISLAMIC SCHOOLS COUNCIL
FORM SIX INTER ISLAMIC MOCK EXAMINATION

BIOLOGY 1

(For Both School and Private Candidates)

133/1

TIME: 3 Hours

Monday, 2nd March 2026 p.m.

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. Except drawings that must be drawn in pencil. All writings should be in blue or black ink.
5. Communication devices and any unauthorized 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

1. (a) During cancer treatment, a patient is exposed to a powerful radiation therapy that accidentally damages the nuclear envelope of rapidly dividing cells. Predict five (5) effects of this damage on metabolism and division of the cell.

(b) Some cellular organelles may have different names and functions when present in different type of cells. Consider the organelles found in the following cells to prove the statement above.
 - (i) Plasmodesmata in xylem tracheids
 - (ii) Ribosomes in the cell body of a nerve cell.
 - (iii) Lysosome in mature spermatozoa
 - (iv) Lysosome in secondary oocyte
 - (v) Plastids in insect pollinated flowers
2. During a practical lesson, students tested different food samples using Benedict's solution, Biuret test, and iodine solution. One sample turned brick-red with Benedict's solution, purple with Biuret test but showed no colour change with iodine solution.
 - (a) Identify the biochemical compounds present in the food sample based on the test result.
 - (b)
 - (i) In two points for each, explain the importance of biochemical compounds identified in 2 (a) above.
 - (ii) Name the enzyme responsible for hydrolysis of each compound and location in the gut where the hydrolysis occurs.
3. (a) An African bush elephant belongs to order proboscidae and family elephanta. Its scientific name is *Loxodonta africana*. Make a table indicating the hierarchy classification of this animal.

(b) Form six students at Kiembeni secondary were provided with a variety of specimens. Some students grouped the specimens based on habitats while others used modern advanced biological criteria.
 - (i) Outline five criteria incorporated by the other students.
 - (ii) Why do you think habitat alone is not a reliable basis for classifying organisms?

4. (a) By using two points for each, suggest natural circumstances or habitat in which light intensity and temperature might be limiting factors in photosynthesis. Give your response as in the table below:

	Limiting factors	
	Light intensity	Temperature
	Natural circumstance or habitat	
	(i)	
	(ii)	

- (b) Explain how glandular tissues are adapted to the function they perform in the alimentary canal. (Give six points)
5. (a) Calcium ions enter neurone through pre-synaptic membrane when action potential arise.
- (i) Explain how these ions enter the neurone.
- (ii) Without diagrams, describe the events which follow the entry of these ions until depolarization of post synaptic membrane.
- (b) Draw a well labeled diagram showing a transverse section of cochlea.
6. (a) A student compares muscle cells during intense exercise, yeast cells in a sealed container and plant tissue growing in water logged soil where oxygen is limited. Apply the knowledge you obtained from biology to explain the fate of pyruvic acid in these cells under given conditions. Include chemical equations to your explanation.
- (b) Give the role(s) of the following structures in the human respiratory system.
- (i) Cartilage in trachea
- (ii) Cillialed epethilium in bronchi
- (iii) Goblet cells in bronchioles
- (iv) Collagen fibre in alveoli
7. While reviewing some biological literature, form six students at Chombezi secondary school discovered that the process of gamete formation in humans involves four phases. However, most of the books hold that the process is accomplished in only three phases. With the aid of diagram, refer to oogenesis to prove correct these students.

SECTION B (30 Marks)

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

8. (a) Like animals, plants need the movement of two atmospheric gases in and out of their body cells. With the help of a diagram describe the mechanism by which plants achieve this process.
- (b) Clearly explain how each of the following factors affect the rate of respiration in mammals.
- (i) Oxygen concentration
 - (ii) Temperature
 - (iii) Levels of physical activities
 - (iv) Types of food substrate
 - (v) Availability of energy (ATP)
9. (a) During demonstration of absorption of water and mineral salts in the root, a biology instructor said that the transported materials might take different routes to reach the xylem before taken to the upper parts of a plant. With the aid of a diagram explain three routes described by the instructor.
- (b) Two organisms are placed in a controlled environment with oxygen sensors. Oxygen levels in the tissue of one organism rise slowly while in the other rise quickly. Explain three differences in their circulatory systems that cause this observation.
10. (a) Briefly describe how the following conditions favour the movement of pollen grains between two angiosperms located in different areas.
- (i) Protandry and protogyny
 - (ii) Dioecious
 - (iii) Self incompatibility (self-sterility)
- (b) In reference to nature of the gamete, type of fertilization and fertilization medium, prove the statement that bryophytes exhibit a lot of reproductive features in common with amphibians.