

## THE UNITED REPUBLIC OF TANZANIA

## MINISTRY OF EDUCATION AND CULTURE

## FORM TWO SECONDARY EDUCATION EXAMINATIONS, 2000

0033

BIOLOGY

TIME: 2 HOURS.

## INSTRUCTIONS

1. This paper consists of sections A, B and C.
2. Answer ALL questions from sections A and B and ONE question from section C.
3. All answers for sections A and B must be written in the space provided for each question.
4. Answers for section C should be written in the paper provided.
5. Write your examination number on the top right hand corner of every page.
6. All writing must be in blue/black ink or ball point pens.
7. Cell phones are not allowed in the examination room

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	SCORE	INITIALS OF EXAMINER
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
TOTAL		

**SECTION A (30 MARKS)**

Answer ALL questions from this section. Each question carries 10 marks.

1. Questions (i) - (x) are multiple choice items. Select the best answer in each case and write its letter in the box provided.

(i) The study of interactions between living organisms and their environment is called:

- A. Genetics
- B. Ecology
- C. Physiology
- D. Cytology
- E. Taxonomy

(ii) Which organelle is responsible for protein synthesis in a cell?

- A. Ribosome
- B. Golgi apparatus
- C. Lysosome
- D. Endoplasmic reticulum
- E. Centriole

(iii) The deficiency disease caused by lack of iodine is:

- A. Goitre
- B. Scurvy
- C. Rickets
- D. Beriberi
- E. Pellagra

(iv) The structure used for locomotion in Amoeba is:

- A. Cilia
- B. Flagella
- C. Pseudopodia
- D. Tentacles
- E. Setae

(v) Which of the following is a characteristic of chordates?

- A. Exoskeleton

- B. Notochord
- C. Jointed legs
- D. Antennae
- E. Compound eyes

(vi) A positive test for reducing sugars results in:

- A. Blue-black colour with iodine
- B. Violet colour with Biuret
- C. Orange precipitate with Benedict's solution
- D. Red stain with Sudan III
- E. Cloudy emulsion with ethanol

(vii) The blood vessel that supplies blood to the heart muscle is:

- A. Pulmonary artery
- B. Coronary artery
- C. Aorta
- D. Vena cava
- E. Pulmonary vein

(viii) The main function of the stem in a plant is to:

- A. Absorb water
- B. Support leaves and transport materials
- C. Carry out photosynthesis
- D. Store food
- E. Anchor the plant

(ix) Which of the following is an example of a voluntary action?

- A. Heartbeat
- B. Sneezing
- C. Writing
- D. Digestion
- E. Blinking

(x) The primary role of the kidneys in the human body is:

- A. Digestion

- B. Excretion
- C. Respiration
- D. Circulation
- E. Reproduction

2. The following statements are either TRUE or FALSE. In the spaces provided write TRUE if the statement is correct and FALSE if the statement is not correct.

- (i) All animals have a backbone. ....
- (ii) The stomach produces hydrochloric acid to aid digestion. ....
- (iii) Algae belong to the Kingdom Protista. ....
- (iv) The pulmonary artery carries oxygenated blood. ....
- (v) Osmosis is the movement of water across a fully permeable membrane. ....
- (vi) Cholera is caused by a bacterium. ....
- (vii) The cell wall in fungi is made of chitin. ....
- (viii) All plants have vascular tissues. ....
- (ix) Blood group O can donate to all blood groups. ....
- (x) Transpiration pull helps in the movement of water in plants. ....

3. The following are matching items. Match the phrase or term in List A with that in List B by writing its letter in the spaces provided in the table at the end of the question.

LIST A	LIST B
(i) Site of photosynthesis in plant cells	A. Chloroplast
(ii) Disease caused by lack of vitamin D	B. Rickets
(iii) Structure for gaseous exchange in leaves	C. Stomata
(iv) Carries blood from the heart to the body	D. Aorta
(v) Organism that causes amoebic dysentery	E. Entamoeba histolytica
(vi) Deficiency disease due to lack of vitamin A	F. Night blindness

(vii) Enzyme that digests carbohydrates	G. Amylase
(viii) Increases surface area for absorption in small intestine	H. Villi
(ix) Process of cell division for growth	I. Mitosis
(x) Gas required for respiration	J. Oxygen

**Answers:**

<b>LISTA</b>	i	ii	iii	iv	v	vi	vii	viii	ix	x
<b>LISTB</b>										

**SECTION B (50 MARKS)**

This section consists of five short answer questions. You are required to answer ALL questions from this section. Read the questions carefully before writing the answers in the spaces provided. Each question carries 10 marks.

4. (a) Define the term "organ".

.....  
 .....

(b) Name three organs in the human digestive system and their functions.

(i) .....

Function: .....

(ii) .....

Function: .....

(iii) .....

Function: .....

(c) State one difference between an organ and an organ system.

.....

5. (a) What is meant by the term "transpiration"?

.....  
 .....

(b) Draw a labelled diagram of a stomata showing guard cells and epidermal cells.

(c) List two factors that affect the rate of transpiration.

(i) .....

(ii) .....

6. (a) Define the term "ecosystem".

.....  
.....

(b) Construct a food chain with five organisms, including a producer and a tertiary consumer.

.....

(c) Explain one role of producers in an ecosystem.

.....  
.....

7. (a) What is meant by the term "binomial nomenclature"?

.....  
.....

(b) List three rules of binomial nomenclature.

(i) .....

(ii) .....

(iii) .....

(c) Give the scientific name of one plant and one animal.

Plant: .....

Animal: .....

8. (a) Define the term "immunity".

.....  
.....

(b) Outline three ways the body defends itself against pathogens.

(i) .....

.....

(ii) .....

.....

(iii) .....

.....

(c) Name one disease that can be prevented by vaccination.

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**SECTION C (20 MARKS)**

This section consists of two guided essay questions. You are required to answer only ONE question. Each question carries 20 marks.

9. Write an essay on bilharzia using the following guidelines:

- Causative agent
- Modes of transmission
- Symptoms
- Effects on the body
- Prevention and control measures

10. Write an essay on the importance of the circulatory system in mammals using the following guidelines:

- Structure of the circulatory system
- Functions of the circulatory system
- Importance of blood circulation
- Common disorders of the circulatory system