

## THE UNITED REPUBLIC OF TANZANIA MINISTRY OF EDUCATION AND CULTURE

## FORM TWO SECONDARY EDUCATION EXAMINATIONS, 2002

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		

This paper consists of 11 printed pages

**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 item and write its letter in the box provided.

(i) The branch of biology that deals with the study of heredity is:

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

(ii) The structure in a plant cell that contains chlorophyll is:

- A. Nucleus
- B. Mitochondrion
- C. Chloroplast
- D. Vacuole
- E. Ribosome

(iii) Which of the following is a function of the large intestine?

- A. Digestion of proteins
- B. Absorption of water
- C. Secretion of digestive enzymes
- D. Breakdown of carbohydrates
- E. Production of bile

(iv) The organism that causes amoebic dysentery is:

- A. Plasmodium
- B. Entamoeba histolytica
- C. Trypanosoma
- D. Vibrio cholerae
- E. Mycobacterium tuberculosis

(v) Which of the following is a feature of mammals?

- A. Lay eggs
- B. Have scales
- C. Produce milk for their young
- D. Breathe through gills
- E. Cold-blooded

(vi) The reagent used to test for proteins in a food sample is:

- A. Benedict's solution
- B. Iodine solution
- C. Biuret solution
- D. Sudan III
- E. Ethanol

(vii) The part of the heart that prevents backflow of blood from the ventricles to the atria is:

- A. Semilunar valve
- B. Tricuspid valve

- C. Aortic valve
- D. Pulmonary valve
- E. Mitral valve

(viii) The process by which organisms maintain a stable internal environment is called:

- A. Excretion
- B. Homeostasis
- C. Respiration
- D. Nutrition
- E. Reproduction

(ix) Which of the following belongs to the Kingdom Protista?

- A. Yeast
- B. Amoeba
- C. Mushroom
- D. Fern
- E. Bacteria

(x) The primary source of energy in an ecosystem is:

- A. Consumers
- B. Decomposers
- C. Producers
- D. Sunlight
- E. Herbivores

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 plants carry out photosynthesis. ....
- (ii) The kidneys are responsible for filtering blood. ....
- (iii) Viruses can only reproduce inside a host cell. ....
- (iv) The oesophagus is the site of nutrient absorption. ....
- (v) Haemoglobin in red blood cells transports oxygen. ....
- (vi) All insects have three pairs of legs. ....
- (vii) The stomata are found only on the upper surface of leaves. ....
- (viii) Scurvy is caused by a deficiency of vitamin B1. ....
- (ix) The spinal cord is part of the central nervous system. ....
- (x) Fungi reproduce by forming seeds. ....

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 space provided in the table at the end of the question.

LIST A	LIST B
(i) Storage of genetic material	A. Nucleus
(ii) Disease caused by deficiency of iodine	B. Goitre
(iii) Structure for gaseous exchange in insects	C. Tracheae
(iv) Transports water in plants	D. Xylem
(v) Hormone that regulates blood sugar	E. Insulin
(vi) Caused by lack of vitamin B3	F. Pellagra
(vii) Blood cells that carry oxygen	G. Erythrocytes
(viii) Process of cell division in body cells	H. Mitosis
(ix) Organism that lives on or in another organism	I. Parasite
(x) Enzyme that digests proteins in the stomach	J. Pepsin

**Answers:**

LIST A	i	ii	iii	iv	v	vi	vii	viii	ix	x
LIST 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 "enzyme".

.....  
 .....

(b) Name three digestive enzymes and their functions.

(i) .....

Function: .....

(ii) .....

Function: .....

(iii) .....

Function: .....

(c) State one factor that affects enzyme activity.

.....

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

.....

.....

(b) Draw a labelled diagram of the human urinary system.

(c) Name two waste products excreted by the kidneys.

(i) .....

(ii) .....

6. (a) Define the term "food web".

.....

.....

(b) Construct a food web with at least five organisms, including a producer, primary consumer, and secondary consumer.

.....

(c) Explain one significance of food webs in ecosystems.

.....

.....

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

.....

.....

(b) List three beneficial uses of microorganisms.

(i) .....

(ii) .....

(iii) .....

(c) Name one harmful effect of microorganisms.

.....

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

.....

.....

(b) Write the word equation for aerobic respiration.

.....

(c) List two differences between aerobic and anaerobic respiration.

(i) .....

.....

(ii) .....

.....

### 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 cholera 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 personal hygiene using the following guidelines:

- Definition of personal hygiene
- Practices of personal hygiene
- Importance of personal hygiene
- Consequences of poor hygiene