

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION AND CULTURE
FORM TWO SECONDARY EDUCATION EXAMINATIONS, 2004
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.

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

SECTION A

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) Which of the following is a characteristic feature of Kingdom Monera?

- A. Presence of chloroplasts
- B. Multicellular structure
- C. Lack of a distinct nucleus
- D. Complex organ systems
- E. Photosynthetic ability

(ii) The part of a microscope that regulates the amount of light entering the stage is:

- A. Diaphragm
- B. Eyepiece
- C. Objective lens
- D. Coarse adjustment knob
- E. Mirror

(iii) The process by which water moves through a semi-permeable membrane from a region of high concentration to low concentration is called:

- A. Diffusion
- B. Osmosis
- C. Active transport
- D. Transpiration
- E. Filtration

(iv) Which nutrient is primarily digested in the stomach?

- A. Carbohydrates
- B. Proteins
- C. Fats
- D. Vitamins
- E. Minerals

(v) The following organisms belong to the same phylum:

- A. Earthworm, tapeworm, leech
- B. Cockroach, grasshopper, butterfly
- C. Snail, slug, jellyfish
- D. Starfish, sea urchin, crab
- E. Spider, scorpion, centipede

(vi) Which of the following is a communicable disease?

- A. Kwashiorkor
- B. Tuberculosis
- C. Rickets
- D. Scurvy
- E. Anaemia

(vii) A food sample turns violet when mixed with Biuret solution. This indicates the presence of:

- A. Starch
- B. Protein
- C. Reducing sugar
- D. Lipid
- E. Vitamin

(viii) The blood vessel that carries deoxygenated blood from the heart to the lungs is:

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

(ix) Which of the following is not a component of the skeletal system?

- A. Cartilage
- B. Ligament
- C. Tendon
- D. Muscle
- E. Bone

(x) The process of breaking down food into simpler substances is called:

- A. Absorption
- B. Assimilation
- C. Digestion
- D. Ingestion
- E. Egestion

2. The following statements are either TRUE or FALSE. In the space provided write TRUE if the statement is true and FALSE if the statement is false. The first one is done for you.

All living organisms require energy to survive TRUE.

(i) Viruses are considered living organisms because they can reproduce independently.

(ii) The pancreas produces insulin to regulate blood sugar levels.

(iii) All fungi are parasitic and cause diseases in humans.

(iv) The xylem transports water and minerals in plants.

(v) Anaerobic respiration produces more energy than aerobic respiration.

(vi) The diaphragm contracts during exhalation.

(vii) Red blood cells contain a nucleus in mammals.

- (viii) Photosynthesis occurs in the mitochondria of plant cells.
- (ix) Malaria is transmitted by the bite of a female Anopheles mosquito.
- (x) The large intestine is the primary site for nutrient absorption.

3. The following are matching items. Match the phrase or term in List A with that in List B by writing its letter against the appropriate position in the space provided alongside List A.

LIST A	LIST B
(i) Site of protein synthesis in a cell	A. Ribosome
(ii) Disease caused by lack of vitamin C	B. Scurvy
(iii) Structure that controls cell activities	C. Nucleus
(iv) Gas essential for aerobic respiration	D. Oxygen
(v) Organism that feeds on dead organic matter	E. Saprophyte
(vi) Process of taking in food into the mouth	F. Ingestion
(vii) Blood cells that fight infections	G. Leucocytes
(viii) Plant tissue responsible for sugar transport	H. Phloem
(ix) Deficiency disease due to lack of iron	I. Anaemia
(x) Organ for gaseous exchange in fish	J. Gills

Answers:

LIST A	i	ii	iii	iv	v	vi	vii	viii	ix	x
LIST B										

SECTION B

This section consists of five (05) 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 "cell".

.....

.....

(b) List four differences between a prokaryotic and eukaryotic cell.

PROKARYOTIC CELL	EUKARYOTIC CELL
(i)	(i)
(ii)	(ii)
(iii)	(iii)
(iv)	(iv)

(c) State two functions of the cell membrane.

- (i)
- (ii)

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

.....

.....

(b) Name three components of a balanced diet and give one example of each.

(i)

Example:

(ii)

Example:

(iii)

Example:

(c) Mention two deficiency diseases caused by lack of vitamins.

(i)

(ii)

6. (a) Draw a labelled diagram of the human respiratory system from the trachea to the alveoli.

(b) Explain two adaptations of the alveoli for gaseous exchange.

(i)

.....

(ii)

.....

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

.....
.....

(b) List three abiotic factors that affect living organisms in an ecosystem.

(i)

(ii)

(iii)

(c) Name two types of ecological interactions between organisms.

(i)

(ii)

8.(a) Define the term "First Aid".

.....
.....

(b) Outline three steps to provide First Aid to a person with a minor burn.

(i)

.....

(ii)

.....

(iii)

(c) List two items found in a First Aid kit.

(i)

(ii)

SECTION C

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 HIV/AIDS using the following guidelines:

- Definition of HIV/AIDS
- Modes of transmission
- Symptoms of AIDS
- Effects on individuals and society
- Preventive measures

10. Write an essay on the importance of classification of living organisms using the following guidelines:

- Definition of classification
- Reasons for classifying living organisms
- Hierarchical levels of classification
- Importance of binomial nomenclature