

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION AND CULTURE

FORM TWO SECONDARY EDUCATION EXAMINATIONS, 2001

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 process by which green plants make their own food using sunlight is called:

- A. Respiration
- B. Photosynthesis
- C. Transpiration
- D. Digestion
- E. Excretion

(ii) Which part of the cell is responsible for controlling all cell activities?

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

(iii) The disease caused by a deficiency of vitamin B1 is:

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

(iv) The structure that allows gaseous exchange in amphibians is:

- A. Gills
- B. Lungs
- C. Skin
- D. Tracheae
- E. Spiracles

(v) Which of the following is a characteristic of Kingdom Fungi?

- A. Photosynthetic
- B. Cell wall made of cellulose
- C. Non-motile spores
- D. Presence of chloroplasts
- E. Unicellular only

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

- A. Biuret solution
- B. Benedict's solution

- C. Iodine solution
- D. Sudan III
- E. Ethanol

(vii) The blood component responsible for clotting is:

- A. Erythrocytes
- B. Leucocytes
- C. Thrombocytes
- D. Plasma
- E. Haemoglobin

(viii) The part of a plant responsible for anchoring and water absorption is:

- A. Stem
- B. Leaf
- C. Root
- D. Flower
- E. Fruit

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

- A. Reading a book
- B. Blinking when dust enters the eye
- C. Eating food
- D. Walking to school
- E. Writing a letter

(x) The primary function of the large intestine in humans is:

- A. Digestion of proteins
- B. Absorption of water
- C. Secretion of enzymes
- D. Absorption of nutrients
- E. Storage of food

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 viruses are harmful to living organisms.
- (ii) The small intestine is the main site for digestion and absorption of nutrients.
- (iii) Ferns belong to the Kingdom Plantae.
- (iv) The heart pumps blood to the lungs through the pulmonary vein.
- (v) Enzymes are proteins that speed up chemical reactions.
- (vi) Malaria is caused by a virus.
- (vii) The cell membrane is fully permeable to all substances.
- (iii) Bryophytes have true roots and stems.
- (ix) Blood group AB is a universal donor.
- (x) The process of transpiration occurs mainly through stomata.

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) Organelle that produces energy | A. Mitochondrion |
| (ii) Disease caused by lack of vitamin C | B. Scurvy |
| (iii) Structure for locomotion in Euglena | C. Flagellum |
| (iv) Carries deoxygenated blood to the lungs | D. Pulmonary artery |
| (v) Process of breaking down glucose to release energy | E. Respiration |
| (vi) Deficiency disease due to lack of protein | F. Kwashiorkor |
| (vii) Enzyme that digests fats | G. Lipase |
| (viii) Increases surface area for water absorption in plants | H. Root hair |
| (ix) Organism that causes tuberculosis | I. Mycobacterium |
| (x) Gas produced during photosynthesis | J. Oxygen |

Answers:

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

SECTION B

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 "diffusion".

.....

(b) List three factors that affect the rate of diffusion.

(i)

(ii)

(iii)

(c) Give one example of diffusion in living organisms.

.....

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

.....

.....

(b) Write the word equation for photosynthesis.

.....

(c) Name two factors that affect the rate of photosynthesis.

(i)

(ii)

6. (a) Draw a labelled diagram of the human heart showing the four chambers and major blood vessels.

(b) State two differences between arteries and veins.

| Arteries | Veins |
|----------|-------|
| (i) | (i) |
| (ii) | (ii) |

7. (a) Define the term "classification".

.....

.....

(b) List three reasons why classification of living organisms is important.

(i)

(ii)

(iii)

(c) Name one organism from each of the following kingdoms:

(i) Monera:

(ii) Protista:

8. (a) What is meant by the term "First Aid"?

.....

.....

(b) Outline three steps to provide First Aid to a victim of a snake bite.

(i)

.....

(ii)

.....

(iii)

.....

(c) Name two items in a First Aid kit used for wound care.

(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 malaria 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 enzymes in living organisms using the following guidelines:

- Definition of enzymes
- Role of enzymes in digestion
- Role of enzymes in metabolism
- Factors affecting enzyme activity