

**THE UNITED REPUBLIC OF TANZANIA  
THE PRESIDENT'S OFFICE  
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT**

**FORM TWO EXAMINATION  
033 BIOLOGY**

**Time: 2½ Hours**

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**INSTRUCTIONS**

1. This paper consists of THREE (3) sections A, B, and C with a total of ten (10) questions.
2. Attempt **ALL** questions.
3. All answers must be written in the spaces provided.
4. Write your examination number on every page in this question paper.
5. All writing must be in blue/black ink. Diagrams must be drawn in pencil and labeled in ink.
6. Cell phones and calculators are not allowed in the examination room

<b>FOR EXAMINER'S USE ONLY</b>		
<b>Question Number</b>	<b>Score</b>	<b>Initials of Examiner</b>
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
<b>TOTAL</b>		

## SECTION A (15 Marks)

### Answer all questions

1. Choose the most correct answer among the given alternatives and write down the answer in the space given.
  - (i) The branch of Biology that deals with the study of animals is called
    - A. Anatomy
    - B. Botany
    - C. Zoology
    - D. Histology
  - (ii) When investigating the effect of fertilizers on crop yield, the crop yield is
    - A. Independent variable
    - B. Dependent variable
    - C. Control experiment
    - D. Determining factor
  - (iii) Virus that infects and multiplies within bacteria is called
    - A. Prokaryote
    - B. Bacteriophage
    - C. Microorganism
    - D. Eukaryotes
  - (iv) A young boy of about 18 years old was complaining of pain and itching in the urethra during urination and discharge of mucus and pus from his penis. What disease could he be possibly suffering from?
    - A. Gonorrhoea
    - B. Syphilis
    - C. Genital herpes
    - D. Chlamydia
  - (v) What happens during photosynthesis leading to the production of carbohydrate?
    - A. The oxygen from photolysis of water is combined with the carbon dioxide from the atmosphere
    - B. The hydrogen from photolysis of water is combined with the carbon dioxide from the atmosphere
    - C. The chlorophyll in the chloroplast is combined with the carbon dioxide from the atmosphere
    - D. The carbon from carbon dioxide is dissolved in the absorbed water
  - (vi) Which of the following distinguishes mushrooms from coconut trees?
    - A. Mushrooms store carbohydrates in form of starch
    - B. Mushrooms store carbohydrates in form of glycogen
    - C. Mushrooms do not store carbohydrates

D. Mushrooms do not have cell walls

(vii) Which of the following contains a set of holozoic organisms only?

- A. Humans, Mushrooms and bacteria
- B. Plants, mushrooms and worms
- C. Humans, birds and snakes
- D. Viruses, protozoa and algae

(viii) The following are examples of organs:

- A. Root, stem, flower and leaves
- B. Xylem, phloem, root and shoot
- C. Stomach, blood, skin and mitochondrion
- D. Eye, heart, stomach and blood

(ix) In one very hot and sunny day when students from Seypalm secondary school were going home from school, they saw a farm of maize with young maize plants drying up and wilting. One of the students said, “the young maize plants are wilting due to the lack of water as it hasn’t rained for two weeks now.” The statement of the student can be categorized as

- A. A conclusion
- B. An experimentation
- C. A hypothesis
- D. Data collection and analysis

(x) One could use forefinger and the middle finger to observe heart beat rate. This is an example of

- A. Use of basic knowledge to show people that you are a genius
- B. Use of common sense in making observation
- C. Use of special equipment in making observation
- D. Use of sense organs in making observation

2. Match items in list A with the correct phrase in list B.

LIST A	LIST B
(i) Are made up of fatty acids and glycerol (ii) Are made up of carbon, hydrogen and oxygen (iii) Large organic molecules made up of amino acids (iv) Vitamin A, D, E and K. (v) Vitamin B and vitamin C.	A. Marasmus B. Carbohydrates C. Fat soluble vitamins D. Protein E. Balanced diet F. Lipids G. Water soluble vitamins H. Minerals I. Kwashiorkor

## SECTION B (70 Marks)

### Answer all questions

3. Seypalm is a biologist. When presented with a stone and a snake and asked to do a research on only one of those two things, Sypalm did a research on the snake. Outline five characteristics of the snake that made Seypalm choose it for his research.
- (i) .....
  - .....
  - (ii) .....
  - .....
  - (iii).....
  - .....
  - (iv).....
  - .....
  - (v) .....
  - .....
4. (a) Government and relevant non-government organizations, often offer vaccination services and encourage people to be vaccinated, such as when there is a pandemic. Help people to respond positively to these government efforts by educating them about the following as related to vaccination:
- (i) Meaning of vaccination and vaccine:  
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  - (ii) Two things a vaccine can be made of:  
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  - (iii) Four examples of diseases that can be vaccinated  
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- (b) Giving at least one example of each, differentiate between communicable diseases and non-communicable diseases.  
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5. (a)During researches, observations are made by using sense organs and special equipment.
- (i) Give four examples of the sense organs used and how each of the sense organ can be used in making observation.

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(ii) Give four examples of special equipment used and how each of the equipment can be used in making observation.

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(b) Briefly explain each of the following conditions involved in a scientific Experiment:

i. Dependent variable

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ii. Independent variable

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iii. Control experiment

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6. (a) Your teacher placed a sample of a plant cell on a microscope slide on the stage of a light microscope for you to observe it. Name the two parts of the light microscope just below the stage and state their functions.

(i) .....

(ii) .....

- (b) Briefly explain four ways the cell your teacher set up for you to observe in 6(a) above, fundamentally differ from a cell obtained from inside your cheek.

(i) .....

(ii) .....

(iii).....

(iv).....

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7. (a) Seyplam was drinking milk and eating sugar cane. State the enzymes involved in breaking down the carbohydrates from the milk and sugar cane to the absorbable end products in the ileum, and mention all of those end products.

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- (b) Briefly explain four ways the ileum is adapted to perform its functions:

- (i) .....  
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(ii) .....  
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(iii).....  
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(iv).....  
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8. Carefully study the following picture and outline five main features of the division represented by the organism in the picture:



- (i) .....  
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(ii) .....  
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(iii).....  
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(iv).....  
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