

**THE PRESIDENT'S OFFICE REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT**  
**BUNDA DISTRICT COUNCIL**  
**FORM TWO PRE-NATIONAL ASSESSMENT**  
**013 BIOLOGY**

**Time: 2½ hours**

**2024**

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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

**SECTION A (15 MARKS)**

1. Select the most correct answer in each item and write its letter beside its corresponding item number.
  - (i) The crop yield in the sunflower farm increased when new seed variety was used, the seed variety in this case is :

|                             |                                                                                         |
|-----------------------------|-----------------------------------------------------------------------------------------|
| (A) A control experiment    | <div style="border: 1px solid black; width: 50px; height: 50px; margin: 0 auto;"></div> |
| (B) A hypothesis            |                                                                                         |
| (C) A dependent variable    |                                                                                         |
| (D) An independent variable |                                                                                         |

One of the following is the most proper way of disposing waste:

|                       |                                                                                         |
|-----------------------|-----------------------------------------------------------------------------------------|
| (A) Burying           | <div style="border: 1px solid black; width: 50px; height: 50px; margin: 0 auto;"></div> |
| (B) Burning           |                                                                                         |
| (C) Sanitary landfill |                                                                                         |
| (D) Open dumps        |                                                                                         |
  - (ii) Diabetes mellitus is an example of :

|                              |                                                                                         |
|------------------------------|-----------------------------------------------------------------------------------------|
| (A) Epidemic diseases        | <div style="border: 1px solid black; width: 50px; height: 50px; margin: 0 auto;"></div> |
| (B) Communicable disease     |                                                                                         |
| (C) Pandemic diseases        |                                                                                         |
| (D) Non-communicable disease |                                                                                         |

The part of a microscope that is used to concentrate light on the specimen is called:

|                    |                                                                                         |
|--------------------|-----------------------------------------------------------------------------------------|
| (A) Mirror         | <div style="border: 1px solid black; width: 50px; height: 50px; margin: 0 auto;"></div> |
| (B) Diaphragm      |                                                                                         |
| (C) Objective lens |                                                                                         |
| (D) Condenser      |                                                                                         |

The following are examples of organs only:

|                                       |                                                                                         |
|---------------------------------------|-----------------------------------------------------------------------------------------|
| (A) Blood, bone, and xylem vessels    | <div style="border: 1px solid black; width: 50px; height: 50px; margin: 0 auto;"></div> |
| (B) Skin, stomach, and roots          |                                                                                         |
| (C) Heart, bone, and shoot            |                                                                                         |
| (D) Brain, muscle, and phloem vessels |                                                                                         |
  - (iii) The following are goals of the ARVs (antiretroviral) medicines in dealing with HIV/AIDS except:

|                                              |  |
|----------------------------------------------|--|
| (A) Preventing transmission of HIV to others |  |
|----------------------------------------------|--|

- (B) Curing the disease by killing the HIV virus  
 (C) Slowing or stopping symptoms  
 (D) Improving how well the immune system works

☐

(iv) During starvation and after when the human body has used up all of the stored fat in the body, where does it get energy source from before dying?

- (A) Glycogen  
 (B) Protein  
 (C) Carbohydrates  
 (D) Lipids

☐

(v) The method of preserving food in an edible liquid such as brine and vinegar is called.

- (A) Curing  
 (B) Fermentation  
 (C) Bio-preservation  
 (D) Pickling

☐

(vi) Which of the following organisms belong to the same classes in the taxonomic hierarchy?

- (A) bats and birds  
 (B) Pangolins (Scaly anteaters) and monitor lizards  
 (C) Bats and pangolins (Scaly anteaters)  
 (D) Turtles and toads

☐

Where does gaseous exchange in grasshoppers occur?

- (A) In spiracles  
 (B) In the lungs  
 (C) In trachea  
 (D) In the gills

☐

2. Match the phrase or term in list A with that in list B by writing its letter against the number of item in list A.

| LIST A |                                                               | LIST B                   |
|--------|---------------------------------------------------------------|--------------------------|
| (i)    | A mobile protocista that moves by means of cilia.             | A. Bacteriophage         |
| (ii)   | An example of a prokaryotic organism                          | B. <i>vibrio cholera</i> |
| (iii)  | A disease caused by a bacterium                               | C. HIV/ AIDS             |
| (iv)   | Occurs when an animal cell is placed in a hypertonic solution | D. Paramecium            |
| (v)    | A saprophytic organisms.                                      | E. Crenation             |
|        |                                                               | F. Hemolysis             |
|        |                                                               | G. Edible mushroom       |
|        |                                                               | H. Syphilis              |

| i | ii | iii | iv | v |
|---|----|-----|----|---|
|   |    |     |    |   |

### SECTION B (70 Marks)

Answer ALL questions from this section

3. (a) Differentiate a specimen from a model:

- (i) A specimen is: \_\_\_\_\_  
 (ii) A model is \_\_\_\_\_

- (b) Give two differences between an antiseptic and an antibiotic.

| Antiseptic | Antibiotic |
|------------|------------|
| (i)        |            |
| (ii)       |            |

- (c) State any structural differences between an onion and a mushroom's cell in terms of:

- (i) Cell wall:  
(ii) Form of carbohydrate stored:

4. (a) State any six adaptations of the parts of the heart to their functions:

- (i) \_\_\_\_\_  
(ii) \_\_\_\_\_  
(iii) \_\_\_\_\_  
(iv) \_\_\_\_\_  
(v) \_\_\_\_\_  
(vi) \_\_\_\_\_

- (b) With reference to blood antigens and antibodies, briefly explain why in hospitals, blood group 'O negative' is often overused and consequently is always in short supply?

5. (a) State the meaning of the following terminologies as used in ecology and give an example of each:

- (i) Niche \_\_\_\_\_  
(ii) Interspecific interaction \_\_\_\_\_  
(iii) Intraspecific competition \_\_\_\_\_

- (b) Differentiate a food web from a food chain

- (c) Use names of any real organisms to represent the following trophic levels and draw a diagram of a food web containing all of the seven organisms you have named:

- (i) An autotroph \_\_\_\_\_  
(ii) Two primary consumers \_\_\_\_\_ and \_\_\_\_\_  
(iii) Two secondary consumers \_\_\_\_\_ and \_\_\_\_\_  
(iv) A tertiary consumer \_\_\_\_\_  
(v) A decomposer \_\_\_\_\_

A food web diagram:

6. (a) Differentiate breathing from gaseous exchange:

- (b) Briefly explain the mechanism of exhalation in humans in terms of the diaphragm muscles, diaphragm, intercostal muscles, ribcage, thoracic cavity and pressure.

- (c) State any two points that underline the significance of anaerobic respiration.

- (i) \_\_\_\_\_  
(ii) \_\_\_\_\_

7. (a) Differentiate between holozoic and saprophytic nutrition and give one example of organism involved in each.

- (b) State the location, the enzyme involved in digestion, and the end product of digestion of each of the following nutrients along the human's alimentary canal:

| Nutrient | Location of digestion | Enzyme involved in the digestion | End product of digestion |
|----------|-----------------------|----------------------------------|--------------------------|
| Starch   |                       |                                  |                          |
| Protein  |                       |                                  |                          |
|          |                       |                                  |                          |
| Lipids   |                       |                                  |                          |
|          |                       |                                  |                          |
| Maltose  |                       |                                  |                          |
| Peptides |                       |                                  |                          |

8. (a) Give eight advantages of bacteria:
- (b) Give two disadvantages of bacteria:
9. (a) Give four main features of the division of plants in which the moss plant is found.
- (b) Draw a labeled diagram of the moss plant showing the gametophyte, sporophyte, seta, capsule, leaf like structures and rhizoids.

### SECTION C (15 Marks)

10. Write an essay on Syphilis using the following guidelines:
- (i) Causes
  - (ii) Transmission
  - (ix) Symptoms
  - (x) Effects
  - (xi) Preventions
  - (xii) Treatment