

**THE UNITED REPUBLIC OF TANZANIA  
NATIONAL EXAMINATIONS COUNCIL OF TANZANIA  
CERTIFICATE OF SECONDARY EDUCATION EXAMINATION**

**033/2A**

**BIOLOGY 2A  
(ACTUAL PRACTICAL A)  
(For Both School and Private Candidates)**

**Time: 2:30 Hours**

**Year: 2024**

**Instructions**

1. This paper consists of **two (2)** questions. Answer **all** questions.
2. Each question carries **twenty five (25)** marks.
3. All writings should be in **blue** or **black** ink, except diagrams which must be in pencil.
4. Communication devises and any unauthorized materials are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).



1. You have been provided with specimen **X** which has been exposed to direct sunlight for 5 hours while attached to the mother plant. Also, you are provided with methylated spirit and iodine solution. Use them to perform the experiment in procedures (i) - (iv), then answer the questions that follow:

### Procedure

- (i) Put specimen **X** in the beaker and boil it for 3 minutes, then remove it.
- (ii) Dip the boiled specimen **X** into test tube containing methylated spirit and place the test tube in a beaker of boiling water for about 5 minutes. Observe the changes.
- (iii) Remove specimen **X** from hot methylated spirit and rinse it with warm water. Note the texture of the specimen when removed from hot methylated spirit and after rinsing with warm water.
- (iv) Put the rinsed specimen **X** on a white tile and add 3 drops of iodine solution on the surface of the specimen. Observe the changes.

### Questions

- (a) What was the aim of the experiment?
  - (b) Why specimen **X** boiled in water for about 4 minutes?
  - (c) Identify the observation made when specimen **X** boiled in methylated spirit.
  - (d) Briefly explain one importance for each of the following:
    - (i) Putting specimen **X** in hot methylated spirit.
    - (ii) Placing a test tube containing specimen **X** and methylated spirit in a beaker of boiling water.
  - (e) Identify the texture of specimen **X** after:
    - (i) removing the specimen from hot methylated spirit.
    - (ii) rinsing the specimen with warm water.
  - (f) Give your observation when iodine solution was added on the surface of specimen **X**.
  - (g) What is your conclusion about the results of the experiment in procedures (i) - (iv)?
  - (h) Draw a diagram of specimen **X** and label four external parts.
2. You have been provided with specimens **S**, **T**, **U** and **V**. Study them and answer the following questions:
- (a)
    - (i) State three distinctive characteristics for placing specimen **V** and **S** in the same kingdom.
    - (ii) State three characteristics that made each of the specimens **V** and **S** to belong to different divisions.

- (iii) Explain three importance of specimen **S** to human being. Give three points to support your answer.
  - (iv) Identify reproductive structure shown by specimens **V** and **S**.
- (b) Closely observe specimen **S** and then identify the floral arrangements which are typical characteristics of the class it belongs.
- (c)
- (i) Identify each of specimens **T** and **U** by its common name.
  - (ii) Classify specimens **T** and **U** to the division level.
  - (iii) Give three reasons for specimen **T** to belong to the respective division.
- (d) Explain importance of specimen **U** to the environment.