

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

**033/2A**

**BIOLOGY 2A**

**ALTERNATIVE A PRACTICAL  
(For Both School and Private Candidates)**

**TIME: 2½ Hours**

**Wednesday 8<sup>th</sup> October 2008 a.m.**

**Instructions**

1. This paper consists of two (2) questions.
2. Answer both questions.
3. Each question carries 25 marks.
4. Electronic calculators are **not** allowed in the examination room.
5. Cellular phones are **not** allowed in the examination room.
6. Write your **Examination Number** on every page of your answer booklet(s).

1. You have been provided with specimens S<sub>1</sub>, S<sub>2</sub>, S<sub>3</sub> and S<sub>4</sub>. Observe the specimens carefully and answer the following questions:

- (a) (i) What characteristics are common among specimens S<sub>1</sub>, S<sub>2</sub>, S<sub>3</sub> and S<sub>4</sub>?  
(3 marks)
- (ii) Name the kingdom and phylum/division to which specimens S<sub>1</sub>, S<sub>2</sub>, S<sub>3</sub> and S<sub>4</sub> belong.  
(4 marks)
- (iii) Why are S<sub>3</sub> and S<sub>4</sub> placed in different classes?  
(2 marks)
- (b) (i) What distinctive features place specimen S<sub>2</sub> in its respective kingdom?  
(2 marks)
- (ii) Why are specimens S<sub>3</sub> and S<sub>4</sub> classified under the same phylum?  
(4 marks)
- (c) (i) Suggest how the specimen labelled S<sub>1</sub> is adapted to its mode of life.  
(4 marks)
- (ii) Give reasons why specimen S<sub>1</sub> can not grow taller?  
(2 marks)
- (d) Describe the advantages and disadvantages of the organisms which belong to the class into which S<sub>3</sub> is found.  
(4 marks)

2. You have been provided with a variegated leaf and iodine solution. Carefully follow the instructions given below and answer the questions that follow.

- (i) Heat some water to boiling point in a beaker and then turn off the source of heat.
- (ii) Use forceps to dip the leaf in the hot water for about 30 seconds.
- (iii) Remove the leaf from the beaker.
- (iv) Push the leaf into the bottom of the test-tube and cover it with alcohol (ethanol).
- (v) Place the tube in hot water until the alcohol boils together with the leaf.
- (vi) Remove the leaf from the test-tube containing ethanol and dip it into hot water.
- (vii) Spread the decolourized leaf on a white tile and drop iodine solution on to it.
- (a) What was the aim of the experiment?
- (b) Why was the leaf dipped in hot water for 30 seconds?
- (c) (i) Give reason, why the leaf was boiled in ethanol?  
(ii) Why was the leaf dipped once again in hot water?
- (d) Give the interpretation of the results observed when a few drops of iodine solution were poured onto the decolourized leaf.

(25 marks)