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

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).

This paper consists of 2 printed pages.

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1. You have been provided with specimens S₁, S₂, S₃ and S₄. Observe the specimens carefully and answer the following questions:

(a) (i) What characteristics are common among specimens S₁, S₂, S₃ and S₄?  
(3 marks)

(ii) Name the kingdom and phylum/division to which specimens S₁, S₂, S₃ and S₄ belong.  
(4 marks)

(iii) Why are S₃ and S₄ placed in different classes?  
(2 marks)

(b) (i) What distinctive features place specimen S₂ in its respective kingdom?  
(2 marks)

(ii) Why are specimens S₃ and S₄ classified under the same phylum?  
(4 marks)

(c) (i) Suggest how the specimen labelled S₁ is adapted to its mode of life.  
(4 marks)

(ii) Give reasons why specimen S₁ can not grow taller?  
(2 marks)

(d) Describe the advantages and disadvantages of the organisms which belong to the class into which S₃ 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)