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

NOVEMBER 2013

033/2A

**BIOLOGY 2A
(ACTUAL PRACTICAL A)**

24 HOURS ADVANCE INSTRUCTIONS

1.0 IMPORTANT

- 1.1 GREAT CARE MUST BE TAKEN NOT TO DIVULGE THESE INSTRUCTIONS TO BOTH CANDIDATES AND UNAUTHORIZED PERSONS EITHER DIRECTLY OR INDIRECTLY.
- 1.2 MAKE SURE THAT THE CANDIDATES ARE PROVIDED WITH SPECIMENS, CHEMICALS AND APPARATUS INDICATED IN THIS ADVANCED INSTRUCTION ONLY AND NOT OTHERWISE.
- 1.3 PLEASE DO NOT OPEN THE ENVELOPE CONTAINING THE QUESTION PAPERS 24 HOURS BEFORE THE TIME OF COMMENCEMENT OF THE EXAMINATION.

2.0 PREPARATION AND LABELLING OF SPECIMENS

2.1 Preparation of solution

- (a) Starch solution.
Prepare 2% starch solution by mixing 20g of starch powder with 1 litre of distilled/ rain water. Boil the contents and allow it to cool.
- (b) Glucose solution.
Prepare 2% glucose solution by mixing 20g of glucose powder with 1 litre of distilled/ rain water.
- (c) Mix glucose solution with starch solution, and then provide each candidate with 30 cm³.

2.2 Labeling of the specimens and reagents

- (a) Mixture of starch and glucose solution ----- **B**
- (b) Butterfly ----- **S₁**

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- | | | |
|-----|------------------|----------------|
| (c) | Spider ----- | S ₂ |
| (d) | Earthworm ----- | S ₃ |
| (e) | Moss plant ----- | S ₄ |

3.0 CHEMICALS

Prepare fresh solutions of the following:

- (a) Benedict's solution
- (b) Iodine solution
- (c) Dilute hydrochloric acid
- (d) Dilute sodium hydroxide
- (e) Sudan III
- (f) 1% CuSO₄ solution.

4.0 APPARATI

Provide each candidate with all apparati listed in the Advance Instructions sent to you earlier.

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