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**THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL
CERTIFICATE OF SECONDARY EDUCATION EXAMINATION
NOVEMBER 2014**

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 APPARATI 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) 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) Add 500cm³ of distilled water to 1 litre of fresh milk.
- (c) Mix the starch solution and milk solution. Provide each candidate with 30cm³.

2.3 Labelling of the specimens and reagents

- | | |
|--|----------------|
| (a) Mixture of starch and milk solution----- | A ₄ |
| (b) Pea seed ----- | P |
| (c) Maize grains ----- | Q |
| (d) Quill feather ----- | R |

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2.4 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% CuSO_4 solution.

2.5 Apparati

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