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

**NOVEMBER 2017**

**033/2A**

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

**24 HOURS ADVANCE INSTRUCTIONS**

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**1.0 ● IMPORTANT**

- 1.1 GREAT CARE MUST BE TAKEN NOT TO DIVULGE THESE INSTRUCTIONS TO BOTH CANDIDATES AND UNAUTHORIZED PERSONS EITHER DIRECT OR INDIRECTLY.
- 1.2 MAKE SURE THAT THE CANDIDATES ARE PROVIDED WITH THE SPECIMENS, CHEMICALS AND APPARATI INDICATED IN THESE ADVANCE INSTRUCTIONS 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 OF SOLUTION AND LABELLING**

**2.1 Preparation of solution and specimens**

- (a) Dissolve 20g of sucrose in 1 litre of water.
- (b) Mix the sucrose solution with 500 cm<sup>3</sup> of cooking oil and stir the mixture well. Provide each candidate with 30 cm<sup>3</sup>.
- (c) For fresh chicken or small bird, use chloroform to anaesthetize the animal 40 minutes before the examination start.

**2.2 Labelling of the specimens and solutions**

- (a) A mixture of sucrose and cooking oil solution----- X
- (b) Grasshopper ----- K<sub>1</sub>
- (c) Killed/preserved chicken or small bird----- K<sub>2</sub>
- (b) Pine leaf----- K<sub>3</sub>
- (c) Maize seedling----- K<sub>4</sub>

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### 2.3 Reagents

Prepare fresh solutions and label them as bench reagents.

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

### 2.0 APPARATI

Provide each candidate with the following apparatus

- (a) Test tubes ----- 4
- (b) Test tube rack ----- 1
- (c) Test tube holder ----- 1
- (d) Test tube brush ----- 1
- (e) Source of heat (Bunsen burner) ----- 1
- (f) Pipette/dropper ----- 1
- (g) Beakers----- 2
- (h) Watch glasses ----- 3