

**THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL**

**033 BIOLOGY ACTUAL PRACTICAL FOR ORDINARY LEVEL OF
SECONDARY EDUCATION**

1.0 IMPORTANT

The National Examinations Council has prepared a checklist of specimens, chemicals and apparatus for Biology Actual Practical. As a Head of the school **make sure that all specimens, chemicals and apparatus indicated in this checklist are available** in the school laboratory. Some of these will be used for Certificate of Secondary School Examinations (CSEE) 2017 Biology practical. There **will be no** one month advance instructions which will be provided for Biology practical. However, 24 Hours Advance Instructions will be provided.

2.0 SPECIMENS, CHEMICALS AND APPARATI

In addition to normal fittings of a Biology laboratory each candidate will require some of the listed specimens, chemicals and apparatus as will be prescribed in the 24 hours advance instructions.

2.1 Specimens

(a) Grasshopper -----	1 per candidate
(b) Pine leaf -----	1 per candidate
(c) Maize seedling (germination period- two weeks)-----	1 per candidate.
(d) Bean seedling (germination period- two weeks)-----	1 per candidate
(e) Mushroom-----	1 per candidate
(f) Irish potato-----	1 per candidate
(g) Spider-----	1 per candidates
(h) Butterfly -----	1 per candidate
(i) Earthworm -----	1 per candidates.
(j) Tilapia fish-----	1 for candidates
(k) Chicken/small bird (fresh/preserved) -----	1 for 4 candidates

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| (l) Rat (fresh/preserved) ----- | 1 for 4 candidates |
| (m) Crab----- | 1 for 4 candidates |
| (n) Fern plant ----- | 1 per 4 candidates |

2.2 Chemicals

Each candidate will require the following

Bench reagents:

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

Other chemicals

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| (g) Cooking oil ----- | 5 ml per candidate |
| (h) Egg albumen powder----- | 2 g per candidate |
| (i) Glucose powder----- | 2g per candidate |
| (j) Sucrose powder----- | 2g per candidate |
| (k) Starch powder----- | 2g per candidate |
| (l) distilled water ----- | 200 ml per candidate |
| (m) Tap water ----- | 1000 ml per candidate. |

2.3 Apparati

Each candidate will require:

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| (a) | Test tubes ----- | 4 per candidate |
| (b) | Test tube rack ----- | 1 per candidate |
| (c) | Test tube holder ----- | 1 per candidate |
| (d) | Test tube brush ----- | 1 per candidate |
| (e) | Source of heat (Bunsen burner) ----- | 1 per candidate |
| (f) | Pipette/dropper ----- | 1 per candidate |
| (g) | Beakers----- | 3 per candidate |
| (h) | Watch glasses ----- | 4 per candidate |
| (i) | Mortar and pestle..... | 1 per candidate |
| (j) | Hand lens..... | 1 per candidate |
| (k) | Scalpel----- | 1 per candidate |
| (l) | White tile ----- | 1 per candidate. |