

231/3 Inst. Sc.
BIOLOGY
Paper 3
PRACTICAL
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THE KENYA NATIONAL EXAMINATIONS COUNCIL
Kenya Certificate of Secondary Education
BIOLOGY
Paper 3
PRACTICAL

INSTRUCTIONS TO SCHOOLS

*The information contained in this paper is to enable the head of the school and the teacher in charge of Biology to make adequate preparations for this year's Biology practical examination. **NO ONE ELSE** should have access to this paper or acquire knowledge of its contents. Great care **MUST** be taken to ensure that the information herein does not reach the candidates either directly or indirectly. The teacher in charge of Biology should **NOT** perform any of the experiments nor make the results of the experiments available to the candidates or give any other information related to the experiments to the candidates.*

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Turn over

Each candidate will require the following:

- 20 ml distilled water in a 50 ml beaker labelled L₁.
- 20 ml saturated salt solution (sodium chloride) in 50 ml beaker labelled L₂.
- 3 Sets of potted seedlings as follows:

- One grown under normal conditions labelled Set A.
- One grown in the dark labelled Set B.
- One grown in the dark with unilateral source of light labelled set C.
- The curvature of the seedlings in Set C towards source of light should be obvious.

Results for seedlings in Set C in a trial experiment.

The trials were carried out with small plastic planting bags (small plastic planting bags would be convenient for schools with large number of candidates). However tin cans, cut plastic bottles etc can be used.

Although beans can be used the results below were obtained with cow peas.

Cow peas which had been soaked overnight were planted, kept in the dark to accelerate growth and were ready after 8 days during the month of May when temperatures were moderate.

After covering with a box with a slit at the height of the seedlings the curvatures were showing after only 4 hours.

Trials need to be carried out to establish how long the seeds take to germinate and also to have apparent curvatures. Different types of seeds and temperatures are factors to consider.

Forceps

Blotting paper

Clock/means of timing

Two (2) pieces of plant material obtained from a young herbaceous stems of Tradescantia labelled specimen D.

The pieces should preferably be cut from 1st internode from the top. They should measure 3 cm long.

Scalpel