

231/3 (b) Inst. Sc.
BIOLOGY
Paper 3
PRACTICAL
Oct./Nov. 2009
Done on 14/11/09

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 candidate either directly or indirectly. The teacher in charge of Biology should **NOT** perform any of the experiments or give any information related to these instructions to the candidates.*

This paper consists of 3 printed pages.

Each candidate will require the following:

6 ml of solution labelled P in a test tube.

6 ml of solution labelled Q in a test tube.

About 2 ml of dilute hydrochloric acid labelled solution X in a test tube.

About 4 ml of solution labelled Y in a test tube.

6 ml of solution labelled Z in a test tube.

1. **Preparation of solution P (for every 15 candidates and in multiples of 15).**

Put **ALL** the substance **P** in 80 ml of distilled water, Stir.

Add water to make 100 ml. Stir thoroughly. The substance may not dissolve immediately but will after an hour or so.

2. **Preparation of solution Q (for every 15 candidates and in multiples of 15).**

Put **ALL** the substance **Q** in 80 ml of distilled water. Stir to dissolve. Add water to make 100 ml.

3. **Preparation of dilute hydrochloric acid solution X (for every 50 candidates).**

(Refer to Instructions to Schools 231/3a. The concentrated hydrochloric acid which was **NOT** to be supplied by KNEC must be diluted as hereunder to prepare solution X).

180 ml of concentrated hydrochloric acid is diluted to 1 litre.

To obtain 100 ml which is enough for 50 candidates, 18 ml of concentrated hydrochloric acid is diluted to 100 ml.

4. **Preparation of solution Y (for every 25 candidates and in multiples of 25).**

Put **ALL** the substance **Y** in 80 ml of distilled water. Stir to dissolve. Add water to make 100 ml.

5. **Preparation of solution Z (for every 15 candidates and in multiples of 15).**

Mix substance **T** and substance **U** in 80 ml of warm distilled water.

Dissolve substance **V** in 10 ml of cold distilled water in a large beaker.

Mix the two solutions slowly with constant stirring.

Add distilled water to make total volume 100 ml.

Note:

1. The materials provided are enough for the number of candidates in the centre.

For example: Substance P

For every 15 candidates means if a school has 1, 2, 3 etc up to 15 candidates the solution will be prepared for 15 candidates.

2. In multiples of 15 means for schools with more than 15 but less than 30 candidates, the centre is provided with twice the amount of the substance but **MUST** put the substance in twice the amount of water. Schools with more than 30 but less than 45 candidates are provided with three times the amount of the substance but **MUST** put the substance in three times the amount of water etc.

For example:

For up to 15 candidates put all the substances in 80 ml of water and make total volume 100 ml.

Between 15 and 30 candidates put all the substance in 160 ml of water and make total volume 200 ml.

Between 30 and 45 candidates put all the substance in 240 ml of water and make total volume 300 ml etc.

The materials packed are for 15, 30, 45, 60, 75, 90, etc. candidates.

The same will apply for materials packed for 25 and 50 candidates.

3. **Avoid spillage/waste because there is no allowance given to cater for spillage/waste.**