



NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2014

LIFE SCIENCES: PAPER III

Time: 1½ hours

50 marks

INSTRUCTIONS TO TEACHERS AND LABORATORY TECHNICIANS

- Do **NOT** share any of this information with your candidates. It will be considered an irregularity.
- Do **NOT** open the examination packs before the day that the examination is to be written.
- Do **NOT** try out the experiments first and adjust any of the instructions or volumes/amounts of chemicals.

You may **NOT** run successive sessions in order to accommodate all the candidates on an individual basis. This examination must run at the same time for **all** candidates. It is designed so that it can be carried out in any venue and invigilated by staff members that do not have a Life Sciences background. Invigilators should be carefully briefed before the examination on how to complete the grid for procedural and manipulative skills.

- It is important that teachers read through this entire set of instructions carefully before the examination.
- **PLEASE NOTE: IMPORTANT INSTRUCTIONS FOR INVIGILATORS ARE PROVIDED AT THE END OF THIS DOCUMENT.**

The following equipment is to be laid out for **each** candidate at an individual workstation:

- test tube rack
- 3 test tubes of equal size and diameter
- 100 ml beaker containing distilled water and access to additional tap water for rinsing
- 1 polystyrene or plastic or paper cup or similar cup
- permanent marker pen
- 60 ml of solution A in a container labelled A
- 60 ml of solution B in a container labelled B
- 10 ml syringe
- forceps/spatula/teaspoon
- enteric coated tablet in a container marked 'coated' (coated aspirin)
- uncoated tablet (still in its foil) marked 'uncoated' (ordinary aspirin)
- thermometer
- wooden kebab stick (to fit into test tube)
- timer (wall clock with second hand is fine)
- piece of tissue paper/laboratory paper
- three pieces of red/pink litmus paper and three pieces of blue litmus paper
- white tile

Have additional litmus paper, tablets and solutions available in the event of spillage or for a candidate who may ask to repeat a part of the investigation.

NOTES ABOUT THE APPARATUS AND MATERIALS

The items listed above are to be set out for **each** candidate at an individual workstation.

60 ml distilled water – 60 ml of distilled water marked clearly and available to each candidate. Candidates should have access to other water which can be used to clean apparatus. This could be in a large beaker, basin or laboratory sink.

Test tubes – any diameter test tube may be used. Make sure all three test tubes are identical per candidate.

Polystyrene OR Plastic OR Paper cups – each candidate needs one of these in which to pour waste.

Test tube rack – make sure that the test tubes fit properly in the holes. If you do not have sufficient racks, a large beaker or other container which can support the test tubes may be used.

Small beaker or container – each candidate needs to have a small container (at least 100 ml in size).

Stirring or kebab sticks – each candidate needs one of these. These can be purchased from any supermarket.

10 ml syringe – these can be obtained cheaply from your local pharmacy or chemical supplier.

Forceps/spatula/teaspoon – each candidate needs a spatula or teaspoon or forceps.

Thermometer – each candidate needs a regular laboratory thermometer.

Permanent marker – any brand of marker.

Paper towel – one piece per candidate.

Timing device – any clock or watch provided by the learner or the teacher. Cellphones may **not** be used.

Litmus paper – each candidate needs three pieces of red/pink and three pieces of blue litmus paper. Check that the litmus paper works and has not expired.

60 ml of Solution A – white spirit vinegar available from any supermarket. Pour into the container labelled A.

60 ml of Solution B – To make up, add 20 ml (4 teaspoons) of bicarbonate of soda in 100 ml of water, stir to dissolve and pour 60 ml of solution into the container labelled B. Make up solution on day of examination.

Coated aspirin – purchase 'Ecotrin' tablets, coated aspirin (81 mg). It is an orange coated tablet, available at all leading pharmacies; Dis-Chem and Clicks will definitely have these in stock. Cost is around R90.00 for 100 tablets. Place in a container marked 'coated'.

Uncoated aspirin – purchase Disprin Cardiacare – 30 tablets in a light blue box. Leave the tablet in foil in a container marked 'uncoated'.

White tile – to work on.

GENERAL INSTRUCTIONS

- Candidates must supply their own pen, sharp HB pencil, ruler, eraser and calculator.
 - Candidates may be requested to bring their own watches/stopwatches and marking pens if not supplied by the school.
 - Several skills are to be assessed in this examination. Attached are two types of marking grids. Select one for photocopying and use on clipboards by the invigilators during the examination. Make sure that sufficient copies of the grid are made before the examination commences.
 - The information contained in these grids **MUST** be transposed to the front cover of EACH candidate's script after the completion of the examination.
 - **PLEASE NOTE: Candidates who do not have the marks written on the front cover of their script (by invigilator) will lose these assessment marks.**
 - **You MUST send the completed original grids with the completed scripts in an envelope to the IEB.**
 - **There are to be no candidate names, names of schools or red pen marks on any of the scripts.**
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CONFIDENTIAL INFORMATION; DO NOT SHARE WITH THE CANDIDATES.

THE INFORMATION BELOW IS TO BE DISCUSSED BETWEEN THE INVIGILATORS AND THE LIFE SCIENCES TEACHER BEFORE THE EXAMINATION COMMENCES.

Invigilators will be called by the candidates at one point in the investigation.

These are the three observations to be marked by invigilators:

Following instructions: The apparatus has been labelled and laid out as instructed.

Test tube contents: Test tubes with same volume/level of liquid.

Manipulation: This will be a direct instruction candidates must follow, relating to the three test tubes and the litmus paper.

The actual detail of what has to be marked will be on the Instruction Sheet to Invigilators included with the scripts. You may then go through this again with the invigilators.