



NATIONAL SENIOR CERTIFICATE EXAMINATION
SUPPLEMENTARY EXAMINATION – OCTOBER 2016

LIFE SCIENCES: PAPER III

Time: 1½ hours

50 marks

INSTRUCTIONS TO TEACHERS AND LABORATORY TECHNICIANS

IT IS IMPORTANT THAT TEACHERS CAREFULLY READ THROUGH THIS ENTIRE SET OF INSTRUCTIONS BEFORE THE EXAMINATION.

PLEASE NOTE: This is an open-ended practical, and as such, results can be **HIGHLY** variable from one school to another and also from one candidate to another. There is no **CORRECT** result for this investigation. It is imperative that candidates write up and discuss **EXACTLY** the results they get. They **MUST NOT** try to guess the result and make their data 'fit' the expected result.

- Do **NOT** share any of this information with your candidates. It will be considered an irregularity, if you do.
- Do **NOT** open the examination packs before the day that the examination is to be written.
- Do **NOT** try the experiments out first or 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 **MUST BE** invigilated by staff members who **do not have a Life Sciences background**. Invigilators are to be carefully briefed before the examination on how to complete the grid for procedural and manipulative skills.

SPECIAL ATTENTION IS DRAWN TO INSTRUCTIONS (AT THE END OF THIS DOCUMENT) TO BE GIVEN TO INVIGILATORS SO THEY CAN PERFORM THEIR DUTY ON THE DAY.

The following equipment is to be laid out for EACH candidate at each individual workstation:
THIS MUST BE DONE BEFORE THE 45 MINUTES NEEDED TO GO THROUGH THE INFORMATION WITH INVIGILATORS.

- test tube rack
- three identical test tubes
- gelatine powder in a container
- three 5 ml measuring spoons
- two wooden kebab sticks
- sharp vegetable knife/steak knife
- piece of fresh pineapple in a container
- pieces of tinned pineapple in a container
- cutting tile/surface
- permanent marking pen
- 10 ml syringe
- tap water
- access to boiling water in an urn or kettle
- access to ice
- 2 beakers/suitable containers
- piece of paper towel
- timing device/clock on the wall

NOTES ABOUT THE APPARATUS AND MATERIALS

The items listed on the previous page are to be set out for **each** candidate at a dedicated workstation.

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

Test tubes – three identical test tubes. Must each be able to hold 50 ml of liquid.

Gelatine powder – 20 ml of gelatine in a container clearly marked, available from the supermarket.

Three 5 ml measuring spoons – three per candidate.

Two wooden kebab sticks – each candidate needs two of these. These can be purchased from any supermarket.

Sharp vegetable knife or steak knife – one per candidate.

Pineapple (fresh) – any type of pineapple is suitable regardless of cultivar. Cut the pineapple into rings about 1 cm thick. Then quarter each ring. Each candidate to get a quarter ring at their workstation and request a second piece later in the activity. Two quarters are thus required per candidate.

Tinned pineapple – any make of tinned product is suitable – buy the rings. Candidates must get a similar amount of tinned pineapple to the fresh quarter (mentioned above); i.e. it must be about 10 ml of pineapple.

Cutting tile/cutting surface – each candidate needs one of these.

Permanent marker – any brand of marker.

10 ml syringe – these can be obtained cheaply from your local pharmacy or chemical supplier. Have some spares available in case some are problematic.

100 ml tap water – in a beaker/container clearly marked "water". 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.

Boiling water in an urn or kettle – each candidate will need 100 ml of boiling water.

Ice – each candidate will need approximately a 200 ml beaker/container of ice.

Two 250 ml beakers or polystyrene/plastic cups – each candidate needs to have two available.

Piece of paper towel to clean up – suggestion is to have extra in the venue.

Timing device – any clock or watch provided by the candidate or the teacher. A wall clock is adequate. **No cell phones.**

GENERAL INSTRUCTIONS

Candidates must supply their own pen, sharp HB pencil, ruler, eraser and calculator.

Candidates may be requested to bring their own marking pen if not supplied by the school.

Several skills are to be assessed in this examination. Attached is a suitable grid, which can be photocopied, placed on clipboards and used by the invigilators during the examination. Make sure that sufficient copies of the grid are made for each venue before you commence the examination.

The information contained in these grids **MUST** be transcribed on the front cover of EACH candidate's script after the completion of the examination. This needs to be checked by the Examination Officer at the school.

You **MUST** send the completed original grids with the completed scripts back to the IEB in an envelope. **ARRANGE** the scripts in examination number order (in packs of 20) and record absentees clearly on the forms supplied.

THE INFORMATION IN THIS DOCUMENT IS CONFIDENTIAL: IT MUST NOT BE SHARED WITH THE CANDIDATES.

OBSERVATIONS TO BE MARKED BY INVIGILATORS: THIS INFORMATION IS TO BE DISCUSSED BETWEEN THE INVIGILATOR/S AND THE LIFE SCIENCES TEACHER(S) IN THE 45 MINUTES BEFORE THE EXAMINATION COMMENCES.

SCRIPTS THAT DO NOT HAVE THE MARKS WRITTEN ON THE FRONT COVER (BY INVIGILATOR) WILL LOSE THESE ASSESSMENT MARKS.

THERE ARE TO BE NO CANDIDATE NAMES, NAMES OF SCHOOLS OR RED PEN MARKS ON ANY OF THE SCRIPTS.

Invigilators must transcribe these marks onto the front of the scripts after the examination.

EXAMINATION NUMBER:		
CRITERIA		
Following instructions	0	1
Test tube contents	0	1
Manipulation	0	1
TOTAL		(3)

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CRITERIA		
Following instructions	0	1
Test tube contents	0	1
Manipulation	0	1
TOTAL		(3)

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Test tube contents	0	1
Manipulation	0	1
TOTAL		(3)

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CRITERIA		
Following instructions	0	1
Test tube contents	0	1
Manipulation	0	1
TOTAL		(3)

An alternate method

[illegible]

NOTE FOR THE INVIGILATOR

The invigilator will need to record the following information on the grids provided.

Following instructions:

The three test tubes must be clearly labelled A, B and C.

Test tube contents:

The same volume of solution/liquid needs to be in all three test tubes in front of the candidate. All contents should be at the same level.

Manipulation:

Evidence of keeping the fresh pineapple and tinned pineapple separate on the desk should be evident.

IMPORTANT

When the candidates hand back their scripts at the end of the examination period, the invigilator **MUST** transfer the information for these 3 marks onto the front cover of the script. It is necessary to circle either the 0 or the 1 in EACH case and to total the mark out of 3 on the script of each candidate.

CRITERIA		
Following instructions	0	1
Test tube contents	0	1
Manipulation	0	1
TOTAL		