NATIONAL SENIOR CERTIFICATE EXAMINATION
SUPPLEMENTARY EXAMINATION – OCTOBER 2015

LIFE SCIENCES: PAPER III

Time: 1½ hours | 50 marks

INSTRUCTIONS TO TEACHERS AND LABORATORY TECHNICIANS

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 or make their data 'fit' the expected result.

- 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 the experiments out 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 MUST BE invigilated by staff members that **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.

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

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

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

- 100 ml hydrogen peroxide (20-volume) in a marked container
- soaked mung beans (excess water removed) in a container marked 'fresh mung beans'
- 50 ml clean sand in a marked container
- ruler to measure
- three identical test tubes in a test tube rack
- wooden kebab stick
- permanent marker
- wooden splint
- 10 ml syringe
- access to water to rinse
- timing device
- three 5 ml measuring spoons
- spatula
- pestle and mortar
- matches

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NOTES ABOUT THE APPARATUS AND MATERIALS

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

100 ml of 20-vol hydrogen peroxide in a marked container: Technician to check that the hydrogen peroxide is fresh.

50 ml mung beans – available at supermarkets and health shops. These need to be soaked in water **overnight** and the water discarded before placing on the candidate's work bench. Label the container 'fresh mung beans'.

50 ml clean river or playpen sand in a container marked 'sand'.

Ruler: 30 cm plastic ruler (candidate should supply own but have some available).

3 identical test tubes – any diameter test tube may be used. Make sure all three test tubes **are identical** per candidate. Standard size that can hold 50 ml or more must be used.

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 which will be able to support the test tubes may be used.

Stirring or kebab stick – 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.

3 × 5 ml measuring spoons – three per candidate. For example, plastic teaspoon available from supermarket.

Spatula

Pestle and mortar: each candidate needs their own if possible or sharing can be arranged.

Permanent marker – any brand of marker.

Timing device – any clock or watch provided by the learner or the teacher.

Matches

Access to water

Wooden splint – pieces of thin wood broken to use to test for gases. For example, thin dowel stick available from hardware store.

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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 above.

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

The information contained in these grids **MUST** be transposed to the front cover of EACH candidate's script after the completion of the examination.

You **MUST** send the completed original grids with the completed scripts in an envelope to the IEB.

CONFIDENTIAL INFORMATION; DO NOT SHARE WITH THE CANDIDATES.

OBSERVATIONS TO BE MARKED BY INVIGILATORS. THIS INFORMATION IS TO BE DISCUSSED BETWEEN THE INVIGILATORS AND THE LIFE SCIENCES TEACHER <u>BEFORE</u> THE EXAMINATION COMMENCES.

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

Following instructions:	**Relates to candidates doing exactly what the examination requires in the instructions. This will be a direct instruction candidates must follow.**
Test tube contents:	**Same volume/same level in all tubes/ colour of contents as given in instructions to invigilators on the day.**
Manipulation:	**In the examination there will be an instruction given to invigilators to look at a measurement. If the instructions have been followed exactly as required, the candidate is to receive this mark.**

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

SAFETY PRECAUTION
Since matches are being used, the venue should have a fire extinguisher.

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