ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

General Certificate of Education Ordinary Level

COMBINED SCIENCE 4003/3

PAPER 3 Practical Test

INSTRUCTIONS TO SUPERVISORS

SPECIMEN PAPER 1 hour 30 minutes

Great care should be taken that any confidential information given does not reach the candidates either directly or indirectly.

Instructions for the Supervisor.

Prior to the examination, the Supervisor should ensure that all apparatus provided for the candidate as listed in these instructions, are in good working condition.

The Supervisor is **NOT** allowed to access the Question paper before the examination **Date** and **Time**.

In addition to the usual equipment of a science laboratory, each candidate will require the apparatus specified overleaf. If a candidate breaks any of the apparatus, or loses any of the material supplied, the matter should be rectified and a note be made in the report.

On the day of the examination, the supervisor is asked to perform the experiments in questions 1 and 2 and to record the results on a spare copy of the question paper clearly labelled "Supervisor's Results", followed by the number of the Centre. This must be enclosed with the scripts. Unless this is done, candidates may be unavoidably penalised.

In larger centres where scripts are despatched in more than one envelope, a copy of the "Supervisor's Results" should be sent with the scripts for each group.

These instructions consist of 4 printed pages, 2 blank pages and a Supervisor's Report.

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Instructions for preparing apparatus

1 In addition to the usual equipment of a Physics/Chemistry/ Biology laboratory, candidates will require the apparatus specified on page 3. Each candidate can spend 45 minutes using the apparatus for each of Questions 1 and 2.

Enough apparatus must be provided to ensure that

(a) no candidate is kept waiting at the end of the allocated time for each question,

(b) spare apparatus is immediately available in the event of failure or breakage of any item.

2 If a candidate is unable to proceed with any of the experiments, the Supervisor is expected to give sufficient help to enable the candidate to do the experiment. If the Supervisor sees that a candidate is proceeding incorrectly, he should give the minimum help to enable the candidate to do the experiment correctly. In giving help, the following regulations should be followed:

(a) No help may be announced to the candidates as a whole.

(b) Candidates should be told that the Examiners will be informed of any help given

(c) A report must be made of any assistance given to any candidate, identified by name and index number

Supervisors may find it useful to make the following announcement to the candidates at the start of the examination. **'The examiners do not want you to waste time when you are unable to do the experiment. Any candidate who is unable to get on with an experiment may come and ask for help. I will report to the Examiners any help given and some marks may be deducted.'**

3 Supervisors are asked to provide the information required by the examiner (if any) at the end of each list of items to be supplied. Page 8 should be used to provide information about any help given to candidates. Pages 7 and 8 should be detached and attached to the 'Supervisor's Results' before despatch to the Examiner. **Details should be given if the apparatus used differ(s) in any significant way from that specified in these Instructions.**

4 **These Instructions are enough for the supervisor to make the right decisions.**
Candidates should be instructed at the start of the examination that all of their work should be written on the spaces provided on the question paper.

Each candidate will require the following:

stop watch/ access to a clock

graduated ruler (30 cm ruler)

4 x 250 cm^3 beakers labelled **A**, **B**, **C** and **D** each with solutions of different concentrations

A 10 % salt solution labelled **A** (100 cm^3)
B 15 % salt solution labelled **B** (100 cm^3)
C 20 % salt solution labelled **C** (100 cm^3)
D 25 % salt solution labelled **D** (100 cm^3)

NB: 10 % solution is 10 g salt in 90 cm^3 water
The identities of the solutions should not be revealed to candidates.

5 potato cylinders measuring 5 cm each placed in distilled water overnight.
NB: The potato cylinders are produced using a cork borer of diameter 0.5 cm.

2 test tubes labelled **A** and **B**
thermometer
test tube rack
measuring cylinder (preferably a 10 cm^3 or 25 cm^3)
15 cm^3 of 1.0 M hydrochloric acid
0.2 g of metal A
0.2 g of metal B rolled
Metal A - cleaned magnesium ribbon
Metal B - cleaned zinc granule

NB: The identities of the metals should not be revealed to candidates.

1 litre of 1.0 M HCl is prepared by adding 98 cm^3 of 32 % HCl to 902 cm^3 of distilled water

or 1 litre of 1.0 M HCl is prepared by adding 85 cm^3 of 36 % HCl to 915 cm^3 of distilled water.

Always add the concentrated acid to water and never add water to acid.

Smaller quantities may be produced by using ratio.

General Information for the Supervisor

The Supervisor may improvise on the apparatus to enable the candidates to carry out the experiments for example, yoghurt cups or cut plastic drinking bottles may be used to replace beakers if there is no heating and the reactions do not corrode plastic.

Also, instead of providing each candidate with a thermometer, the supervisor may instruct the invigilators to give the thermometers to the candidates as per request and hence allow few thermometers to be used by many candidates.

The experiments done by candidates during the practical examination can be carried out in a well ventilated ordinary classroom. The Supervisor may provide communal spirit or gas burners, may use buckets half filled with water as basins to pour away waste materials after rinsing, may provide water in plastic bottles so that candidates may use it for rinsing etc.

Where the practical is not qualitative in nature, water may be used for the dilutions instead of distilled water.

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This form must be completed and returned with the scripts.

REPORT ON THE COMBINED SCIENCE PRACTICAL EXAMINATION

1. Please submit details of the results obtained by the Supervisor for both questions on a spare copy of question paper clearly marked 'Supervisor's Results' and showing the Centre number.

2. The Supervisor is asked to give the following details using the space provided on page 8 where necessary.

(a) Experiment results of the supervisor recorded on a spare copy of the question paper. It is to be clearly labelled "Supervisor's Results" with the centre number.

(b) Any help given to a candidate.

(c) Any general difficulties encountered in preparing the apparatus.

(d) Any difficulties experienced by particular candidates. This should include reference to difficulties due to faulty apparatus or materials and accidental damage to apparatus or materials. Candidates should be identified by name and candidate number.

3. Other cases of hardship, such as disability or illness, should be reported to ZIMSEC **in the normal way**.

4. The Supervisor is asked to provide a plan of the work benches, giving details by candidate numbers of the places occupied by the candidates for each session. The plan should be enclosed with the question papers.

5. Declaration to be signed by the Supervisor

The preparation for this practical examination has been carried out so as to fully maintain the security of the examination.

Signed _____

Name (block capitals) _____

Centre number _____

Centre name _____

This form must be completed and returned with the scripts.

Report on any difficulties by candidates

Signature _____ **Date** _____