

Chemistry 3
INSTRUCTIONS
ALL GROUPS

0715 CONFIDENTIAL: For the Local Assistant Examiner or Supervisor only.

CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD

General Certificate of Education Examination

JUNE XXXX

ADVANCED LEVEL

Chemistry 3

PRACTICAL EXAMINATION

ALL GROUPS

Instructions to Local Assistant Examiner or Supervisor with regard to

- (1) Preparation for the Examination.
- (2) Questionnaire for a report on candidate's work at the Examination and on the laboratory conditions.
- (3) Duplication scheme.

(1) **PREPARATION FOR THE EXAMINATION**

Candidates will record all their answers in the question booklet; **no separate answer booklet is required.**

Arrangement of Candidates in the laboratory and of the examination material.

Candidates **MUST** be placed in the laboratory in the order of their Board examination numbers, and materials **MUST** be given strictly in their serial order, i.e. suppose six candidates have the numbers 2,5,12,15,16 and 20, then starting from the bench occupied by candidate 2, next to him is candidate 5, then 12 and so on. If the materials required are A, B, C and D, they **MUST** be issued so that candidate 2 (Ordinal Number 1) will have A₁, B₁, C₁ and D₁; candidate 5 (Ordinal Number 2) will have A₂, B₂, C₂, and D₅ and so on, candidate 20 having A₆, B₆, C₆ and D₆.

As a further check for both the Local Assistant Examiner or Supervisor and the Board Examiners, the ordinal number of the candidate **MUST** be put on the front cover of the question book, i.e. in the instance quoted, candidate 16 will, have the ordinal number 5 on his book corresponding to the materials A₅, B₅, C₅ and D₅ he has had provided for him. This ordinal number is, of course, additional to the Board Examination number written by the candidate.

Lists of relative atomic masses should be available to the candidates (who are allowed to bring into the examination any books or notes).

A.R. chemicals should be provided wherever possible.

Electronic calculators may be used for calculations.

The simple investigation (Question 2) for each particular Group is based wholly on the chemicals prescribed for that particular Group by the Examiners. **Under no circumstances, therefore, may Local Assistant Examiners or Supervisors depart from these instructions by altering the wording of the paper or the identity of the chemicals to which the wording refers. If the chemicals prescribed are not available, the question paper for which they are specified must not be used. The question paper for another Group should be substituted.**

Further supplies of all materials (Questions 1 and 2) may be issued without penalty.

Teachers are reminded that they are responsible for the safety of candidates during the examination.

Turn over

The supervisor will assume that the following are available to all the candidates:

- Distilled water
- Concentrated sulphuric acid
- Concentrated nitric acid
- Concentrated hydrochloric acid
- Concentrated ammonia
- Approximately 1 mol dm⁻³ aqueous sulphuric acid
- Approximately 2 mol dm⁻³ aqueous nitric acid
- Approximately 2 mol dm⁻³ aqueous sodium hydroxide
- Approximately 2 mol dm⁻³ aqueous ammonia
- Reagents and apparatus for testing of gases

A supply of clean test tubes including some suitable for heating solids, boiling tubes, litmus papers, stirring rods, dropping pipettes, Bunsen burner, tripod stand and gauze, goggles, wash bottle, tissue paper.

Group 1

Question 1.

- 1 Each candidate must be provided with
 - (1) Approximately 200 cm³ of 0.05M NaOH (2 gdm⁻³) labeled "Solution A" BUT NOT NAMED
 - (2) Approximately 100 cm³ of 0.05 M HCl (4.3 cm³ in 1 dm³) labeled "Solution B" BUT NOT NAMED
 - (3) Approximately 2 g of solid oxalic acid (Range: 0.75 g - 0.85 g)
 - (4) Phenolphthalein indicator.
 - (5) One 25-cm³ pipette, one 250-cm³ volumetric flasks, two 250-cm³ conical flasks, film cup, two 250-cm³ beakers, stirrer. wash bottle, one 50-cm³ burette, clamp and stand, funnel,
2. Each candidate will also require access to a balance reading to 0.01 g

Question 2.

Each candidate must be provided with:

- (1) Approximately 2 g of C, labelled "C".
- (2) Approximately 2 g of D, labelled "D".
- (3) Approximately 2 g of E, labelled "E".

Further quantities may be issued without penalty.

Candidates will also require: Material for flame test, pyrex test tubes, 2M NaOH(aq), Aluminium foil, red litmus paper, blue litmus, 2M NH₃(aq), 0.2M BaCl₂(aq), 2M HCl(aq), Br₂(aq), methanol, Conc H₂SO₄

Group 2

Question 1

1. Each candidate must be provided with
 - (1) Approximately 200 cm³ of 0.1M HCl (8.6 cm³ in 1 dm³) labelled "Solution F" BUT NOT NAMED
 - (2) Approximately 100 cm³ of 0.05 M anhydrous Na₂CO₃ (5.3 gdm⁻³) labelled "Solution G" BUT NOT NAMED
 - (3) Approximately 5 g of borax (disodium tetraborate). Range 3.45 g-3.55 g
 - (4) Methyl orange indicator
 - (5) One 25-cm³ pipette, one 250-cm³ volumetric flasks, two 250-cm³ conical flasks, film cup, two 250-cm³ beakers, stirrer. wash bottle, one 50-cm³ burette, clamp and stand, one funnel,

2. Each candidate will also require access to a balance reading to 0.01 g

Question 2

Each candidate must be provided with

- (1) Approximately 2 g of H, labelled “H”.
- (2) Approximately 2 g of I, labelled “I”.
- (3) Approximately 2 g of J, labelled “J”.

Further quantities may be issued without penalty.

Candidates will also require: Material for flame tests, pyrex test tubes 0.01M K_2CrO_4 , 1M dil H_2SO_4 , 0.2M $FeSO_4$, Conc. H_2SO_4 , 2M $NaOH(aq)$, 0.1M $CH_3COONa(aq)$, 0.1M $AgNO_3$, 2M HNO_3 , 2M NH_3 , Neutral $FeCl_3$, Solid soda lime, red and blue litmus papers, Filter paper

Group 3.

Question 1

1. Each candidate must be provided with
 - (1) Approximately 200 cm³ of Solution K which is 0.1M sodium hydroxide (4.0 gdm⁻³)
 - (2) Approximately 100 cm³ of Solution L which is 0.05M sulphuric acid (2.8 cm³ in 1 dm³)
 - (3) Approximately 5 g of sulphamic acid. Range: 2.25 g-2.35 g
 - (4) Phenolphthalein indicator
 - (5) One 250-cm³ volumetric flask, two 250-cm³ conical flasks, one 50-cm³ burette, one funnel, one 25-cm³ pipette, 250-cm³ beakers (2), stirrer, wash bottle, film cup, clamp and stand
2. Each candidate will also require access to balance reading to 0.01 g.

Question 2.

- (1) Approximately 2 g of M, labelled “M”.
- (2) Approximately 2 g of N, labelled “N”.
- (3) Approximately 10cm³ g of O labeled “O”.

Further quantities may be issued without penalty.

Candidates will also require: material of flame test, pyrex test tubes boiling tube 2M Dilute HCl, 0.1M $AgNO_3(aq)$, 0.2M $Na_2CO_3(aq)$, PCl_5 , 0.5M $KI(aq)$, $NaOCl(aq)$, $NH_3(aq)$ red litmus papers and blue litmus papers, crucible lid

Turn Over

Group 4

Question 1

1. Each candidate must be provided with:
 - (1) Approximately 200 cm³ of 0.15M H₂SO₄ (8.25 cm³ in 1dm³) labelled “Solution P” BUT NOT NAMED.
 - (2) Approximately 100 cm³ of 0.05M Na₂CO₃ (5.3gdm⁻³) labelled “Solution Q” BUT NOT NAMED
 - (3) Approximately 6 g Borax (Disodium tetraborate). Range: 4.50 g-4.60 g
 - (4) Methyl orange indicator
 - (5) One 250-cm³ volumetric flask, two 250-cm³ conical flasks, one 50-cm³ burette, one funnel, one 25-cm³ pipette, 250-cm³ beakers (2), stirrer, wash bottle, film cup, clamp and stand
2. Each candidate will also require access to balance reading to 0.01 g.

Question 2.

Each candidate must be provided with:

- (1) Approximately 2 g of R, labelled “R”.
- (2) Approximately 2 g of S, labelled “S”.
- (3) Approximately 2 g of T labeled “T”.

Further quantities may be issued without penalty.

Candidates will also require: Material for flame tests, pyrex test tubes, 2M NaOH, 0,2M K₂CrO₄, neutral iron (III) chloride, 0.2M BaCl₂, 2M HCl, Fehling’s solution A and B, red and blue litmus papers, crucible lid.
