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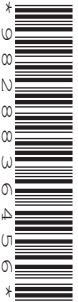
COMBINED SCIENCE

0653/52

Paper 5 Practical Test

October/November 2021

CONFIDENTIAL INSTRUCTIONS



This document gives details of how to prepare for and administer the practical exam.

The information in this document and the identity of any materials supplied by Cambridge International are confidential and must NOT reach candidates either directly or indirectly.

The supervisor must complete the report at the end of this document and return it with the scripts.

INSTRUCTIONS

- If you have any queries regarding these confidential instructions, contact Cambridge International stating the centre number, the syllabus and component number and the nature of the query.
email info@cambridgeinternational.org
phone +44 1223 553554

This document has **8** pages.

General information about practical exams

Centres must follow the guidance on science practical exams given in the *Cambridge Handbook*.

Safety

Supervisors must follow national and local regulations relating to safety and first aid.

Only those procedures described in the question paper should be attempted.

Supervisors must inform candidates that materials and apparatus used in the exam should be treated with caution. Suitable eye protection should be used where necessary.

The following hazard codes are used in these confidential instructions, where relevant:

C	corrosive	MH	moderate hazard
HH	health hazard	T	acutely toxic
F	flammable	O	oxidising
N	hazardous to the aquatic environment		

Hazard data sheets relating to substances used in this exam should be available from your chemical supplier.

Before the exam

- The packets containing the question papers must **not** be opened before the exam.
- It is assumed that standard school laboratory facilities, as indicated in the *Guide to Planning Practical Science*, will be available.
- Spare materials and apparatus for the tasks set must be available for candidates, if required.

During the exam

- It must be made clear to candidates at the start of the exam that they may request spare materials and apparatus for the tasks set.
- Where specified, the supervisor **must** perform the experiments and record the results as instructed. This must be done **out of sight** of the candidates, using the same materials and apparatus as the candidates.
- Any assistance provided to candidates must be recorded in the supervisor's report.
- If any materials or apparatus need to be replaced, for example, in the event of breakage or loss, this must be recorded in the supervisor's report.

After the exam

- The supervisor must complete a report for each practical session held and each laboratory used.
- Each packet of scripts returned to Cambridge International must contain the following items:
 - the scripts of the candidates specified on the bar code label provided
 - the supervisor's results relevant to these candidates
 - the supervisor's reports relevant to these candidates
 - seating plans for each practical session, referring to each candidate by candidate number
 - the attendance register.

Specific information for this practical exam

During the exam, the supervisor (**not** the invigilator) must do the experiments in Questions 1, 2 and 3 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

For Question 1

Each candidate will require the following materials and apparatus.

- 50 cm³ beaker
- 250 cm³ beaker
- thermometer, –10 °C to 110 °C with 1 °C graduations
- boss, clamp and retort stand
- access to hot water (see note 1)
- paper towels
- stop-watch

Notes

1. Hot water should be provided at approximately 80 °C. Candidates will indicate when hot water is required. Each beaker should be approximately three quarters filled when needed by the candidate.
2. Candidates should be warned of the dangers of burns and scalds from hot water and take care when changing beakers.

For Question 2

Each candidate will require the following materials and apparatus.

- 3 × small test-tubes (approximately 125 mm × 15 mm) and a means of supporting them
- 25 cm³ measuring cylinder
- 100 cm³ or 250 cm³ glass beaker
- spatula
- glass stirring rod
- access to a clock with a second hand
- filter funnel
- 2 × filter paper
- dropping pipette (see note 1)

[MH]

- 25 cm³ of 0.5 mol dm⁻³ dilute sulfuric acid labelled **dilute sulfuric acid**

[MH][N]

- 3 g of copper(II) carbonate labelled **copper(II) carbonate** (see note 2)
- 5 cm³ of 1.0 mol dm⁻³ potassium iodide solution labelled **potassium iodide solution** (see note 1)
- 10 cm³ of 1.0 mol dm⁻³ sodium thiosulfate solution labelled **sodium thiosulfate solution**
- access to distilled water or deionised water
- paper towels

Notes

1. There should be a dropping pipette available for the potassium iodide solution. This solution can be provided as a communal bottle for several candidates to use.
2. Basic copper(II) carbonate can be used as an alternative.

For Question 3

Each candidate will require the following materials and apparatus.

- 100 cm³ measuring cylinder
- small cork (see note 1)
- pendulum bob attached to a cotton thread (see note 2)
- 250 cm³ beaker containing approximately 200 cm³ water
- dropping pipette
- access to a balance which can measure the mass of the cork to the nearest 0.1 g
- paper towels

Notes

1. The cork must fit easily inside the measuring cylinder. If necessary, the cork may be replaced with another object that floats, e.g. a piece of expanded polystyrene, but candidates must be made aware of any change.
2. The pendulum bob must fit easily inside the measuring cylinder. The bob must be heavy enough to fully submerge the cork. The bob should be provided attached to a long piece of thread, as shown in Fig. 3.1.
3. At changeover, empty the measuring cylinder and replace the bob and thread.

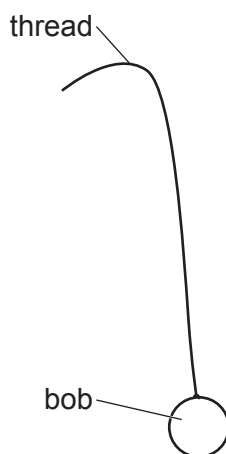


Fig. 3.1

For Question 4

No apparatus is required.

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Supervisor's report

Syllabus and component number

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Centre number

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Centre name

Time of the practical session

Laboratory name/number

Give details of any difficulties experienced by the centre or by candidates (include the relevant candidate names and candidate numbers).

You must include:

- any difficulties experienced by the centre in the preparation of materials
- any difficulties experienced by candidates, e.g. due to faulty materials or apparatus
- any specific assistance given to candidates.

Declaration

- 1 Each packet that I am returning to Cambridge International contains all of the following items:
 - the scripts of the candidates specified on the bar code label provided
 - the supervisor's results relevant to these candidates
 - the supervisor's reports relevant to these candidates
 - seating plans for each practical session, referring to each candidate by candidate number
 - the attendance register.
- 2 Where the practical exam has taken place in more than one practical session, I have clearly labelled the supervisor's results, supervisor's reports and seating plans with the time and laboratory name/number for each practical session.
- 3 I have included details of difficulties relating to each practical session experienced by the centre or by candidates.
- 4 I have reported any other adverse circumstances affecting candidates, e.g. illness, bereavement or temporary injury, directly to Cambridge International on a *special consideration form*.

Signed (supervisor)

Name (in block capitals)