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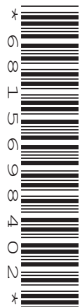
**COMBINED SCIENCE**

**0653/52**

Paper 5 Practical Test

**February/March 2019**

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.**

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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.

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This document consists of **7** printed pages and **1** blank page.

## 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:

<b>C</b>	corrosive	<b>MH</b>	moderate hazard
<b>HH</b>	health hazard	<b>T</b>	acutely toxic
<b>F</b>	flammable	<b>O</b>	oxidising
<b>N</b>	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, 3 and 4 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

### For Question 1

Each candidate will require

- (i) shallow dish, containing cress seeds, labelled **A** (see note 1)
- (ii) shallow dish, containing germinated cress seeds, labelled **B** (see note 2)
- (iii) spatula
- (iv) iodine solution, labelled **iodine solution**, and dropping pipette
- (v) white tile
- (vi) 30 cm ruler, graduated in mm

### Notes

1. Dish **A** should be prepared one day before the examination.
2. Dish **B** must be prepared seven days before the examination and kept in a warm, light position.

To prepare each dish:

Place two to three layers of paper towel in the bottom of a shallow dish or Petri dish. Add a small amount of water to the dish to moisten the paper towel. Evenly spread 20 to 30 cress seeds over the paper towel. Keep the paper towel moist until required by candidates.

### For Question 2

No apparatus is required for this question.

During the exam, the supervisor (NOT the invigilator) must do the experiments in Questions 1, 3 and 4 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

### For Question 3

Each candidate will require

- [MH] (i) 2 g anhydrous sodium carbonate labelled **2 g sodium carbonate**
- [MH] (ii) 4 g anhydrous sodium carbonate labelled **4 g sodium carbonate**
- [MH] (iii) 5 g anhydrous sodium carbonate labelled **5 g sodium carbonate**
- (iv) 2 g ammonium nitrate labelled **2 g ammonium nitrate**
- (v) 4 g ammonium nitrate labelled **4 g ammonium nitrate**
- (vi) 5 g ammonium nitrate labelled **5 g ammonium nitrate**
- (vii) polystyrene cup
- (viii) 250 cm<sup>3</sup> beaker – to hold the polystyrene cup
- (ix) –10 to 110 °C thermometer at 1 °C graduations, suitable for stirring
- (x) stopclock
- (xi) 25 cm<sup>3</sup> measuring cylinder
- (xii) waste container labelled **waste**. Each candidate will generate approximately 200 cm<sup>3</sup> of waste solution
- (xiii) access to distilled water

During the exam, the supervisor (NOT the invigilator) must do the experiments in Questions 1, 3 and 4 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

#### For Question 4

Each candidate will require

- (i) 2 identical steel springs. Expendable steel springs are suitable, for example a 55 mm long spring of diameter 15 mm (see [www.philipharris.co.uk](http://www.philipharris.co.uk), catalogue number B8G87194). The spring must be capable of supporting at least 400 g without overstretching
- (ii) a stand, boss and clamp (see note 1)
- (iii) a 300 g mass including hook (a 100 g mass hanger with two 100 g masses is ideal)
- (iv) 50 cm or 1 m rule

#### Notes

1. The stand, boss and clamp should be provided assembled as shown in Fig. 4.1. The clamp should be sufficiently high that a load of 300 g, added to two springs hung in series, is above the base of the stand.

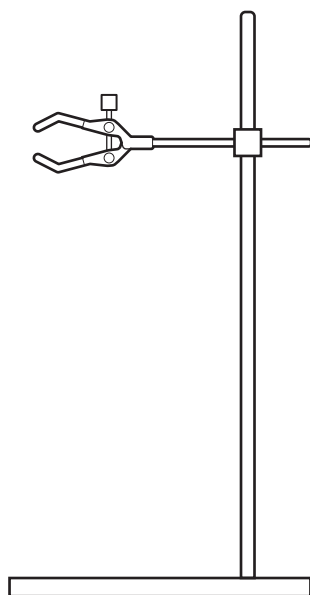


Fig. 4.1

#### **Action at Changeover**

300 g mass should be removed from springs.

The two springs should be separated.

Position clamp as in note 1.

Check that springs have not been overstretched and replace with new springs if necessary.

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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.

Space for supervisor to record results, if relevant, e.g. temperature of the laboratory; results for Question 1.

### Declaration

- 1 Each packet that I am returning to Cambridge International contains 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 that practical session.
- 3 I have included details of difficulties relating to this 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) .....