



Cambridge IGCSE™ (9–1)

PHYSICS

0972/51

Paper 5 Practical Test

May/June 2020

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. Blank pages are indicated.

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

Question 1

Items to be supplied by the centre (per set of apparatus unless otherwise specified)

- (i) Metre rule with a mm scale. See note 1.
- (ii) Triangular block to act as a pivot for the metre rule. This block is to stand on the bench.
- (iii) A 200g mass, labelled 'Q'. See notes 2 and 3.
- (iv) A set of masses of 200g, 300g, 400g, 500g and 600g. The masses must be labelled 2.0N, 3.0N, 4.0N, 5.0N and 6.0N respectively. See note 2.
- (v) 50 cm rule with a mm scale.

Notes

1. If the metre rule has two scales in opposite directions, one scale must be taped over.
2. Any suitable masses that can rest on the metre rule can be used.
3. The value of the mass or weight of Q must not be visible to the candidates.

Action at changeover

Remove the masses from the metre rule.

Remove the metre rule from the pivot.

Check that the apparatus is ready for the next candidate.

Question 2

Items to be supplied by the centre (per set of apparatus unless otherwise specified)

- (i) Power supply of approximately 1.5V–3V. Where candidates are provided with a power supply with a variable output voltage, the voltage must be set by the supervisor and fixed (e.g. taped). See note 2.
- (ii) Three identical lamps in suitable holders, labelled 'L₁', 'L₂' and 'L₃'. Any low voltage lamps will suffice, provided that they glow when connected as shown in Fig. 2.1.
- (iii) Switch. The switch may be an integral part of the power supply.
- (iv) Ammeter capable of reading up to 1.00A with a minimum precision of 0.05A. See note 4.
- (v) Voltmeter capable of measuring the supply potential difference (p.d.) with a minimum precision of 0.1V. See note 4.
- (vi) Sufficient connecting leads to construct the circuit shown in Fig. 2.1, with two additional leads. See note 3.
- (vii) Spare lamps and spare leads.

Notes

1. The components are to be connected by the supervisor as shown in Fig. 2.1.

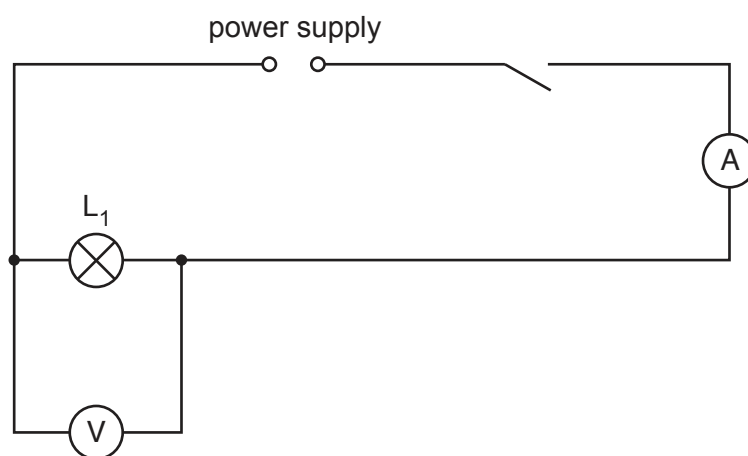


Fig. 2.1

2. If cells are to be used they must remain adequately charged throughout the examination. Spare cells must be available.
3. Candidates must be able easily and quickly to rearrange the circuit.
4. Either analogue or digital meters are suitable. Any variable settings should be set by the supervisor and fixed (e.g. taped). Spare meters must be available.

Action at changeover

Set up the circuit so that it is arranged as shown in Fig. 2.1.

Check the power supply and lamps.

Question 3**Items to be supplied by the centre (per set of apparatus, unless otherwise specified)**

- (i) Plane mirror with a suitable holder. See note 1.
- (ii) Sheet of plain A4 paper with a hole in one corner (per candidate). Some spare sheets should be available.
- (iii) 4 optics pins.
- (iv) Pin board (e.g. a cork mat), A4 size or larger.
- (v) Protractor (candidates may use their own).
- (vi) 30 cm ruler, graduated in mm (candidates may use their own).
- (vii) Treasury tag or string (to be used by the candidate to tie the ray-trace sheet into the Question Paper, one per candidate).

Notes

1. The mirror should be capable of standing vertically with one edge on the sheet of paper. The height of the mirror must be less than the height of the optics pins, when stuck in the pin board.

Action at changeover

Supply a sheet of plain paper, as in (ii) above.

Supply a treasury tag or string, as in (vii) above.

Question 4

No apparatus is required for this question.

BLANK PAGE

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cambridgeinternational.org after the live examination series.

Cambridge Assessment International Education is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of the University of Cambridge Local Examinations Syndicate (UCLES), which itself is a department of the University of Cambridge.

Supervisor's report

Syllabus and component number

				/		
--	--	--	--	---	--	--

Centre number

--	--	--	--	--

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 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)