



# Cambridge IGCSE™

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**BIOLOGY**

**0610/51**

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.**

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## 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](mailto:info@cambridgeinternational.org)  
phone      +44 1223 553554

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This document has **8** pages. Any 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:

<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 experiment in Question 1 and record the results on a spare copy of the question paper, clearly labelled 'supervisor's results'.

### Question 1

Each candidate should be provided with:

hazard	materials and apparatus	quantity per candidate
	large test-tube labelled <b>T</b>	1
	20 cm length of dialysis tubing, knotted at one end and supplied submerged in 100 cm <sup>3</sup> of distilled water in a suitable container labelled <b>W</b>	1
	solution <b>M</b> in a small beaker, labelled <b>solution M</b>	30 cm <sup>3</sup>
	elastic band	1
	standard test-tubes	6
	test-tube rack or other means of supporting six test-tubes and one large test-tube	1
	empty 100 cm <sup>3</sup> beaker	1
	50 cm <sup>3</sup> or 100 cm <sup>3</sup> measuring cylinder	1
	10 cm <sup>3</sup> syringe	1
	2.5 cm <sup>3</sup> or 2.0 cm <sup>3</sup> syringes	2
	250 cm <sup>3</sup> beaker or other container labelled <b>waste</b>	1
	250 cm <sup>3</sup> glass beaker, labelled <b>water-bath</b>	1
	supply of water at approximately 80 °C for the water-bath  Candidates will put up their hand when they are ready for hot water.	approximately 150 cm <sup>3</sup>
	distilled water in a container labelled <b>warm distilled water</b> supplied to candidates at approximately 60 °C at the start of the exam	50 cm <sup>3</sup>
<b>[MH]</b>	Benedict's solution in a dropper bottle with a dropper labelled <b>Benedict's solution</b>	20 cm <sup>3</sup>
<b>[C]</b>	biuret solution in a dropper bottle with a dropper, labelled <b>biuret solution</b>	20 cm <sup>3</sup>
	iodine solution in a dropper bottle with a dropper, labelled <b>iodine solution</b>	20 cm <sup>3</sup>
	permanent marker pen	1
	paper towels	5
	stop-clock	1
	eye protection	1
	gloves	1 pair

**Question 2**

Each candidate should be provided with:

hazard	materials and apparatus	quantity per candidate
	30 cm ruler with a mm scale	1

## Preparation of materials

### *dialysis tubing*

The dialysis tubing should fit inside a large test-tube when filled with liquid, such as dialysis tubing with a flat width between 20–25 mm.

Cut 20 cm lengths of dialysis tubing. Dialysis tubing should be soaked for at least 10 minutes in water and then knotted approximately 1 cm from **one end** before being provided to candidates. Soaking may be done overnight. Knotted dialysis tubing should be presented to candidates submerged in water in a suitable container, labelled **W**.

### *solution M*

Mix equal volumes of the 1% starch suspension, 5% glucose solution and 5% albumen solution. This can be prepared the day before and stored covered in a cool place. It should be at room temperature when given to candidates.

### *1% starch suspension*

This should be prepared by adding 1 g of soluble starch to 80 cm<sup>3</sup> of distilled water and bringing to boiling point to obtain a clear solution. Allow to cool. Make up to 100 cm<sup>3</sup> with distilled water.

The starch suspension can be made the day before the exam and stored in a refrigerator. Allow time for the solution to cool before preparing solution **M**.

### *5% glucose solution*

Dissolve 5 g of glucose powder in 50 cm<sup>3</sup> of distilled water. The powder should be added in small quantities at a time while stirring. The solution can be warmed gently while stirring. Allow the solution to cool and then add more distilled water to make up to a total volume of 100 cm<sup>3</sup>. Allow the solution to cool before preparing solution **M**.

### *5% albumen solution*

Put 5 g of albumen powder into a beaker and add distilled water to make a paste. Add more distilled water to make up to a total volume of 100 cm<sup>3</sup> and warm gently. Allow the solution to cool before preparing solution **M**.

### *food-testing reagents*

Commercially prepared solutions of Benedict's solution, biuret solution and iodine solution are suitable. The Benedict's solution can be qualitative rather than quantitative.

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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) .....