



Cambridge International Examinations
Cambridge Ordinary Level

BIOLOGY

5090/31

Paper 3 Practical Test

May/June 2016

CONFIDENTIAL INSTRUCTIONS

1 hour 15 minutes

Great care should be taken to ensure that any confidential information given does not reach the candidates either directly or indirectly.



If you have any problems or queries regarding these Instructions, please contact CIE
by e-mail: info@cie.org.uk
by phone: +44 1223 553554
by fax: +44 1223 553558
stating the Centre number, the nature of the query and the syllabus number quoted above.

This document consists of **6** printed pages and **2** blank pages.

INSTRUCTIONS FOR PREPARING APPARATUS

These instructions give details of the apparatus required by each candidate for each experiment in this paper. A summary of the questions that will be presented to the candidates is included, where appropriate, to allow the Biology teacher to test the apparatus appropriately.

No access to the question paper is permitted in advance of the examination.

If a candidate breaks any of the apparatus, or loses any of the material supplied, the matter should be rectified and a note made in the Supervisor's Report.

If arrangements are made for different sessions for different groups of candidates, care must be taken to ensure that the different groups of candidates are effectively isolated so that **no information passes between them**.

Supervisors are advised to remind candidates that **all** substances in the examination should be treated with caution. Pipette fillers and safety goggles should be used where necessary.

In accordance with the COSHH (Control of Substances Hazardous to Health) Regulations, operative in the UK, a hazard appraisal of the examination has been carried out.

The following codes are used where relevant.

C = corrosive

F = flammable

MH = moderate hazard

O = oxidising

HH = health hazard

N = hazardous to the aquatic environment

T = acutely toxic

Centres are reminded that they are **not** permitted to open the question paper envelopes before the examination. There are **no** exceptions to this. Centres should also refer to the Cambridge Handbook.

If there are any difficulties with any aspect of setting up this practical examination that the Centre is not able to resolve, it is essential for Centres to contact the Product Manager as soon as possible by **e-mail** to info@cie.org.uk, by **fax** to +44 1223 553558 or by **phone** to +44 1223 553554.

SUPERVISOR'S INSTRUCTIONS – CONFIDENTIAL

No access to the Question Paper is permitted in advance of the examination.

Each candidate will require:

Question 1

- Solutions and reagents provided to the candidates should be supplied in a suitable beaker or container. More of the solutions and reagents should be available if requested by candidates.
- Fresh test-tubes and syringes are needed for each candidate.
- Fresh **A**, **B**, and **methylene blue** is needed for each candidate.
- All solutions and reagents should be disposed of according to local safety regulations.

Summary of solutions and reagents:

labelled	contents	hazard	volume/cm ³
A	actively respiring yeast suspension	none	50
B	yeast suspension, heated to boiling and then cooled	none	50
methylene blue	0.01% methylene blue solution	none	10

It is advisable to wear safety glasses/goggles and gloves when handling chemicals.

Preparation of solutions and reagents:

- (i) To prepare the yeast suspension, add 100 g of dried yeast to 1 dm³ of water in a large beaker and mix in 50 g of glucose. This should be left to stand at 20–25 °C for about two hours before the practical.
It is advisable to stand the beaker in a sink, or in a bowl, because it may overflow.

Apparatus for each candidate should be clean.

Syringe needles are **not** required and must **not** be given to candidates.

apparatus for each candidate	quantity	✓
beaker containing 50 cm ³ actively respiring yeast suspension, labelled A	1	
beaker containing 50 cm ³ yeast suspension, previously heated to boiling and then cooled, labelled B	1	
beaker containing 10 cm ³ 0.01% methylene blue solution, labelled methylene blue solution	1	
test-tubes	4	
test-tube rack or container to hold 4 test-tubes	1	
500 cm ³ glass or metal beaker or container, labelled water bath , to act as a water bath	1	
Bunsen burner or other means of heating	1	
tripod and gauze	1	
access to cold water, or ice, to adjust the temperature of water baths		
thermometer	1	
glass-writing pencil ('Chinagraph' or similar)	1	
glass rod	1	
10 cm ³ plastic syringe/measuring cylinder/graduated pipette	2	
2 cm ³ or 5 cm ³ plastic syringe/measuring cylinder/graduated pipette	1	
paper towels	4	
stop-clock or view of a clock		
safety goggles/glasses	1	

During the examination, the Supervisor (**not** the Invigilator) should, **out of sight of the candidates**, carry out **Question 1** using the same solutions and reagents as the candidates. These results should be written in the Supervisor's Report, not on a spare question paper.

SUPERVISOR'S REPORT and SEATING PLAN

The teacher responsible for the examination is asked to fill in the Supervisor's Report in these Confidential Instructions. For Centres where more than one script packet is used, there must be a copy of the completed Supervisor's Report and the seating plan in each script packet.

These Supervisors' Reports are essential in order to allow the Examiners to assess all candidates as fairly as possible and should always be completed by every Centre.

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This form should be completed and sent to CIE with the scripts.

SUPERVISOR'S REPORT

Cambridge Ordinary Level

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The Supervisor or teacher responsible for the subject should provide the following information.

- 1 Was any difficulty experienced in providing the necessary materials? If so, give brief details.

- 2 Give details of any difficulties experienced by particular candidates, giving names and candidate numbers. Reference should be made to:
 - (a) difficulties with specimens or materials;
 - (b) accidents to apparatus or materials;
 - (c) assistance provided in case of colour-blindness;
 - (d) any other information that is likely to assist the Examiner, especially if this cannot be discovered from the scripts.

Other cases of individual hardship eg. illness or disability, should be reported direct to CIE on the normal 'Special Consideration: Exam Day – Form 7' as detailed in the Cambridge Administrative Guide.

- 3 During the examination, the Supervisor should, **out of sight of the candidates**, carry out **Question 1** using the same apparatus and reagents as the candidates. These results should be written in the Supervisor's Report which should be enclosed with the candidates' scripts. If the scripts are in several packets, please ensure that a copy of the Supervisor's Report is enclosed with each packet of scripts.



- 4 Enclose a seating plan of work benches with the scripts, giving details of the candidate number for the places occupied by the candidates for each session.

Temperature of examination room°C

Results for **Question 1(a)(i)**:

Declaration (to be signed by the Principal)

The preparation of this practical examination has been carried out so as to maintain fully the security of the examination.

Signed

Name (IN BLOCK CAPITALS)

Centre number

Centre name

If scripts are required by CIE to be despatched in more than one envelope, it is essential that a copy of the relevant Supervisor's report and the appropriate seating plan(s) are sent inside **each envelope**.

