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**BIOLOGY**

**5090/32**

Paper 3 Practical Test

**October/November 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.**

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If you have any problems or queries regarding these Instructions, please contact Cambridge  
by email: [info@cie.org.uk](mailto: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.

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

## 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 suitable eye protection 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 **email** to [info@cie.org.uk](mailto:info@cie.org.uk), by **fax** to +44 1223 553558 or by **phone** on +44 1223 553554.

**SUPERVISOR'S INSTRUCTIONS – CONFIDENTIAL**

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

Requirements for the examination:

- Solutions and reagents provided to the candidates should be supplied in a suitable beaker or container. More of the solutions and reagents, including the fruit and potato, should be available if requested by candidates.
- Fresh test-tubes are needed for each candidate.
- Fresh hydrogen peroxide solution is needed for each candidate.
- All solutions and reagents should be disposed of according to local safety regulations.

Summary of solutions and reagents:

Q.	labelled	contents	hazard	quantity
1	ripe/unripe	small, edible, fleshy fruit	low hazard*	2 pieces per candidate
1	iodine solution	iodine solution, as required for food tests	low hazard	
1	Benedict's solution	Benedict's solution, as required for food tests	low hazard	
2	raw	raw (Irish) potato, 3 cm in length, approx. 8 mm in width (number 4 cork borer)	none	3 pieces per candidate
2	boiled	boiled (Irish) potato, 3 cm in length, approx. 8 mm in width (number 4 cork borer)	none	2 pieces per candidate
2	hydrogen peroxide solution	3% w/v hydrogen peroxide solution	[MH] moderate hazard	5 × 10 cm <sup>3</sup> per candidate

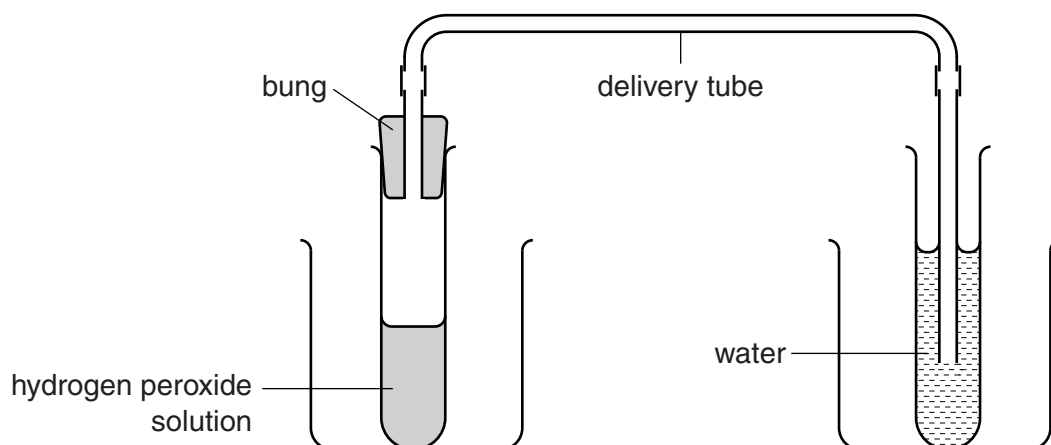
**It is advisable to wear suitable eye protection and gloves when handling chemicals.**

Preparation of solutions and reagents:

- Small, edible and fleshy fruits such as apple, pear, plum, banana, which can be locally sourced in a fresh condition, should be provided.  
\* Be aware of any allergies candidates may have to particular fruits.
- The hydrogen peroxide solution should be freshly prepared the day before the examination and stored in cool, darkened conditions.  
It should be of sufficient strength that when a raw potato chip is placed in it, as per Fig. 1 overleaf, a steady stream of bubbles is produced.  
Please note in the Supervisor's Report if a change to the concentration was required.

Apparatus for each candidate should be clean.

Apparatus for each candidate	Quantity	✓
<b>Question 1</b>		
half a ripe fruit, in suitable dish (e.g. Petri dish lid) labelled <b>ripe</b>	1	
half an unripe fruit, in suitable dish (e.g. Petri dish lid) labelled <b>unripe</b>	1	
white tile	1	
sharp knife or scalpel	1	
test-tubes	2	
test-tube rack or container to hold 2 test-tubes	1	
iodine solution in dropping bottle, labelled <b>iodine solution</b>	1	
Benedict's solution in dropping bottle, labelled <b>Benedict's solution</b>	1	
500 cm <sup>3</sup> glass or metal beaker or container, labelled <b>water bath</b> , to act as a water bath	1	
access to hot water (70 °C) for Benedict's test		
<b>Question 2</b>		
large test-tube containing 10 cm <sup>3</sup> 3% w/v hydrogen peroxide solution, with rubber bung and delivery tube attached, as per Fig. 1	1	
test-tube rack or container (e.g. beaker) to hold test-tube (see Fig. 1)	2	
test-tube containing water	1	
piece of raw, fresh (Irish) potato, 3cm in length (cut using number 4 cork borer if possible, otherwise cut to same width, approx. 8mm) in suitable container covered with plastic film and labelled <b>raw</b>	3	
piece of boiled (Irish) potato, 3cm in length (cut using number 4 cork borer if possible, otherwise cut to same width, approx. 8mm) in suitable container covered with plastic film and labelled <b>boiled</b>	2	
large test-tube (to fit rubber bung provided) containing 10 cm <sup>3</sup> 3% w/v hydrogen peroxide solution, labelled <b>hydrogen peroxide solution</b>	4	
test-tube rack or container to hold 5 test-tubes	1	
white tile	1	
sharp knife or scalpel	1	
paper towels	4	
ruler (mm)	1	
timer or view of a clock		
forceps	1	
suitable eye protection	1	
<b>Question 3</b>		
ruler (mm)	1	



**Fig. 1**

During the examination, the Supervisor (**not** the Invigilator) should, **out of sight of the candidates**, carry out **Question 1** and **Question 2** 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 Supervisor's 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 Cambridge with the scripts.**

**SUPERVISOR'S REPORT**

**Cambridge Ordinary Level**

**October/November 2016**

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

- 1 Was any difficulty experienced in providing 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, e.g. illness or disability, should be reported direct to Cambridge on the normal Special Consideration Form as detailed in the Cambridge Administrative Guide.

- 3 During the examination, the Supervisor should, **out of sight of the candidates**, carry out the practical parts of **Question 1** and **Question 2**, 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 numbers for the places occupied by the candidates for each session.

Temperature of examination room ..... °C.

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

Results for **Question 2(b)(i)**:

**Declaration** (to be signed by the Supervisor)

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 to be dispatched 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**.