

READ THESE INSTRUCTIONS FIRST

These Confidential 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. **Testing must be done out of sight of all candidates.**

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

Centres are reminded that candidates are expected to follow the instructions on the question paper and record all their results. They will not be penalised if these results are not what they expect.

The Supervisor should make sure the Supervisor's Report is fully completed and a copy is enclosed with each packet of scripts.

It is assumed that the ordinary apparatus of a science laboratory will be available, including a supply of purified water (distilled or deionised).

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.**

All specimens should carry only the code letters and numbers as indicated and their identity should not be revealed to the candidates.

Supervisors should ensure that all specimens have the correct identity attached to the specimen and that these are **not** removed during 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.

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

In accordance with 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	MH moderate hazard
HH health hazard	T acutely toxic
F flammable	O oxidising
N hazardous to the aquatic environment	

Centres are reminded that they are **not** permitted to open the question paper envelopes before the examination.

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 Cambridge as soon as possible by **email** to info@cie.org.uk, by **fax** to +44 1223 553558 or by **phone** to +44 1223 553554.

Question 1

Each candidate should be provided with:

- (i) one beaker containing 25 cm³ of solution P, labelled **P**
- (ii) one beaker containing 25 cm³ of solution Q, labelled **Q**
- (iii) one beaker containing 25 cm³ of solution R, labelled **R**
- (iv) 40 cm³ of freshly prepared iodine solution, in a beaker labelled **iodine solution**
- (v) 10 cm³ of 1% starch solution in a beaker labelled **starch solution**
- (vi) two 10 cm³ syringes (without needles)
- (vii) one 1 cm³ syringe (without needle)
- (viii) three large test-tubes
- (ix) one large test-tube rack
- (x) container labelled **waste**
- (xi) beaker or wash bottle containing tap water for washing, labelled **water for washing**
- (xii) white tile or white card
- (xiii) eye protection
- (xiv) plastic gloves

Preparation of solutions

1 dm³ of solutions P, Q and R will be sufficient for a maximum of 10 candidates.

Solution P

Dissolve 2.0 g of ascorbic acid in 700 cm³ of distilled water. Add distilled water to make up to 1 dm³.

Solution Q

Dissolve 1.0 g of ascorbic acid in 700 cm³ of distilled water. Add distilled water to make up to 1 dm³.

Solution R

Dissolve 0.5 g of ascorbic acid in 700 cm³ of distilled water. Add distilled water to make up to 1 dm³.

1% starch solution

Heat 1.0 g of soluble starch in 90 cm³ of distilled water until the liquid clears. Allow the solution to cool and add distilled water to make up to 100 cm³.

iodine solution

A commercially prepared iodine solution such as Lugol's iodine solution may be used.

Alternatively it can be made as follows:

Wear eye protection, disposable gloves and work in a well-ventilated room.

Put 20g of potassium iodide (KI) into a beaker and moisten the potassium iodide with a few drops of distilled water.

Add 10g of iodine (I_2) to the moistened potassium iodide. Add a small volume of distilled water and stir. When no more iodine appears to dissolve add more distilled water and stir. Keep repeating this procedure until all the iodine has dissolved. Do not exceed the total final volume of 1 dm^3 .

If necessary add more distilled water to make up to the total final volume of 1 dm^3 .

The Supervisor (**not** the Invigilator) is expected to carry out the practical aspects of **Question 1** and record their results in the space provided in the Supervisor's Report. This must be done during the examination, using the same apparatus and reagents as the candidates but out of sight of candidates.

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

SUPERVISOR'S REPORT

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.

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- 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;

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- (c) assistance provided in the case of colour blindness;

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- (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 Handbook for Centres.

- 3 During the examination, the Supervisor should, **out of sight of the candidates**, carry out the practical aspects of **Question 1** using the same apparatus and reagents as the candidates. Results should be recorded in the space on page 8 (**not** on a spare question paper). Attach extra sheets if necessary.

The Invigilator should **not** carry out **Question 1**.

Question 1 results:

- 4 A plan of work benches, giving details of the candidate numbers of the places occupied by the candidates for each session, must be enclosed with the scripts.

Declaration (to be signed by the Supervisor)

The preparation of this practical 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 packet, it is essential that a copy of the Supervisor's Report and the appropriate seating plan(s) are inside **each packet**.