Cambridge Assessment International Education

Cambridge International AS & A Level

BIOLOGY **9700/31**

Paper 3 Advanced Practical Skills 1 **October/November 2020**

CONFIDENTIAL INSTRUCTIONS

7631238448

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

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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.

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Specific information for this practical exam

During the exam, the supervisor or other competent biologist (**not** the invigilator) should obtain the results specified on the supervisor's report by following the relevant steps in the question paper. The results should be recorded in the space provided on the supervisor's report.

Organisation of the exam

- Half the candidates should start on Question 1 and the other candidates should start on Question 2.
- For Question 2, each candidate must have uninterrupted use of a microscope for at least 55 minutes.

Materials to be supplied by Cambridge International

- Slide **J1**

  On receipt of the slides, check that they are labelled **J1** and that no slides are broken. The slides should **not** be viewed in advance of the exam. The material on the slides is confidential and must **not** be disclosed to candidates.

  The number of slides supplied by Cambridge International will be equal to half the candidate entry.

Return of slides to Cambridge International

Immediately after the exam, the slides must be:

- returned to Cambridge International in the boxes in which they were received, using the self-adhesive label supplied. The slides must **not** be included in the packet of scripts.

or

- purchased using the order form enclosed with the slides, which should be completed and returned to Cambridge International. The order form must **not** be included in the packet of scripts. Slides and boxes will be charged at the rate of £3.25 per slide plus £1 per box.

If the slides are not returned or purchased by the deadline stated on the order form, the charge will be £3.75 per slide plus £1 per box.

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Materials and apparatus for Question 1

Each candidate will need:

materials and apparatus for each candidate	quantity	✓
[MH][N] 0.1 mol dm^{-3} copper sulfate solution in a beaker or container, labelled **CS**, provided at room temperature (see **Preparation of materials**)	200 cm^3	
Distilled water in a beaker or container, labelled **W**	at least 30 cm^3	
Milk in a beaker or container, labelled **M** (see **Preparation of materials**)	at least 50 cm^3	
70% milk in a beaker or container, labelled **U** (see **Preparation of materials**)	at least 10 cm^3	
10 cm^3 syringe, labelled **CS**	1	
10 cm^3 syringe, **not** labelled	1	
2 cm^3 or 3 cm^3 or 5 cm^3 syringe, labelled **M**	1	
Test-tubes, small, capacity 20–30 cm^3	2	
Test-tube rack	1	
Beakers, capacity 50–100 cm^3	5	
Container with approximately 300 cm^3 tap water, labelled **For washing**	1	
Container, capacity approximately 500 cm^3, labelled **For waste**	1	
Ruler in mm	1	
Glass rod	1	
Paper towels	8	
Stop-clock or timer showing seconds	1	
Glass marker pen, permanent	1	
Suitable eye protection	1	

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Preparation of materials

[MH][N] ● **CS**, 0.1 mol dm^{-3} copper sulfate solution

This is prepared by putting 5.0 g of copper sulfate pentahydrate ($CuSO_4 \cdot 5H_2O$) **[C][MH][N]** into 160 cm^3 of distilled water in a beaker and making up to 200 cm^3 with distilled water. Mix well.

● **M**, whole milk (full fat milk)

Whole cow's milk is preferred but if this is not available, milk of known fat content diluted to approximately 3.5% fat may be used.

● **U**, 70% milk

This is prepared by putting 70 cm^3 of **M** into 30 cm^3 of distilled water.

Materials and apparatus for Question 2

Each candidate will need:

materials and apparatus for each candidate	quantity	✓
Microscope with: ● an eyepiece lens, ×10 magnification ● a low-power objective lens, ×10 magnification ● a high-power objective lens, ×40 magnification	1 between 2	
Slide **J1**	1 between 2	

Preparation of materials

- Microscope

  Any lenses which are **not** ×10 or ×40 should be removed or replaced.

  For each candidate:
  - the microscope must be set up on low power
  - the slide must **not** be on the stage of the microscope.

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Supervisor's report

Syllabus and component number	9	7	0	0	/	3	1
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:

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- any difficulties experienced by candidates, e.g. due to faulty materials or apparatus
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Temperature of exam room ..... °C

Results for Question **1(a)(ii)**

Results for Question **1(a)(iv)**

Declaration

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Signed ..... (supervisor)

Name (in block capitals) .....

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Cambridge Assessment International Education

Cambridge International AS & A Level

BIOLOGY **9700/33**

Paper 3 Advanced Practical Skills 1 **October/November 2020**

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4893234028

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Materials and apparatus for Question 1

Each candidate will need:

materials and apparatus for each candidate	quantity	✓
10% yeast suspension in a beaker or container, labelled **Y** (see **Preparation of materials**)	at least 100 cm^3	
Hydrogencarbonate indicator in a beaker or container, labelled **H**, provided at room temperature (see **Preparation of materials**)	at least 50 cm^3	
Distilled water, in a beaker or container, labelled **W**, provided at room temperature	at least 100 cm^3	
Drinking straw provided on a paper towel	1	
10 cm^3 syringes	2	
Test-tubes, small, capacity 20–30 cm^3	6	
Test-tube, large, capacity approximately 40–55 cm^3	1	
Bung with delivery tube, to fit large test-tube. Use petroleum jelly to make an air-tight seal around the junction of the delivery tube and the bung	1	
Test-tube rack or container to hold 6 small test-tubes	1	
Beakers or containers, capacity 50–100 cm^3	5	
Beaker or container, capacity 400 cm^3, labelled **water-bath**	1	
Beaker, capacity approximately 400 cm^3, with approximately 200 cm^3 water at 50–60 °C and labelled **hot water**. The Supervisor may use a thermostatically controlled water-bath to provide this hot water for candidates.	1	
Beaker, capacity approximately 400 cm^3, with approximately 200 cm^3 of cold tap water, labelled **cold water**	1	
Container with approximately 300 cm^3 tap water, labelled **For washing**	1	
Container, capacity approximately 500 cm^3, labelled **For waste**	1	
Glass rod	1	
Paper towels	12	
Glass marker pen, permanent	1	
Stop-clock or timer showing seconds	1	
Thermometer, –10 °C to +110 °C	1	
Suitable eye protection	1	

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Preparation of materials

Test the yeast suspension well before the examination to make sure that the yeast cells are active. (Do not use yeast used for brewing as this does not always work actively enough in the time).

The day before the exam, the supervisor should check that the test-tubes do not have an acid residue that affects the colour of the indicator (see instructions for **H**).

- **Y**, 10% yeast suspension

  10.0 g of dried yeast (for baking) is added to 80 cm^3 distilled water, stirred and made up to 100 cm^3 with distilled water. This should be kept at a temperature between 35–40 °C. As the yeast suspension will froth, it should be prepared in a large container.

  10 to 15 minutes before the candidates start Question 1 sprinkle 20 g of glucose, a little at a time, onto the surface of the yeast suspension, stirring continuously. Keep warm between 35–40 °C until needed. When ready to put into beakers for each candidate, it is suggested that the yeast suspension is decanted into a new beaker or container leaving the froth behind.

- **H**, hydrogencarbonate indicator

  This is prepared by putting 10 cm^3 of the hydrogencarbonate indicator in a beaker or container and adding 90 cm^3 of distilled water. This should be kept covered.

  The indicator should be a red-brown colour at the start of the exam.

  The supervisor should test a sample of the test-tubes to be used, to check the test-tubes do not have an acid residue that affects the indicator.

  - Put a small volume of indicator into 3 test-tubes.
  - The indicator should remain red-brown in the test-tubes.
  - If the indicator turns yellow, all of the test-tubes should be cleaned without leaving an acid residue.

  The supervisor should test the indicator before the start of the exam by gently blowing through a straw into a small sample of indicator. The indicator should turn yellow.

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Materials and apparatus for Question 2

Each candidate will need:

materials and apparatus for each candidate	quantity	✓
Microscope with: ● an eyepiece lens, ×10 magnification ● a low-power objective lens, ×10 magnification ● a high-power objective lens, ×40 magnification	1 between 2	
Slide **K1**	1 between 2	

Preparation of materials

- Microscope

Any lenses which are **not** ×10 or ×40 should be removed or replaced.

For each candidate:
- the microscope must be set up on low power
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Supervisor's report

Syllabus and component number	9	7	0	0	/	3	3
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Centre name .....

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Temperature of exam room ..... °C

Results for Question **1(a)(iii)**

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Signed ..... (supervisor)

Name (in block capitals) .....

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Cambridge Assessment International Education

Cambridge International AS & A Level

BIOLOGY **9700/34**

Paper 3 Advanced Practical Skills 2 **October/November 2020**

CONFIDENTIAL INSTRUCTIONS

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Materials to be supplied by Cambridge International

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[Turn over

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Materials and apparatus for Question 1

Each candidate will need:

materials and apparatus for each candidate	quantity	✓
2% starch solution, in a beaker or container, labelled **X**, provided at room temperature (see **Preparation of materials**) Note: this item is described differently in the question paper. This is intentional. Candidates should **not** be informed.	at least 20 cm^3	
1% starch solution in a beaker or container, labelled **S**, provided at room temperature (see **Preparation of materials**)	at least 50 cm^3	
Iodine solution in a beaker or container, labelled **iodine**, provided at room temperature and kept out of direct sunlight, with a dropping pipette (see **Preparation of materials**)	at least 20 cm^3	
Distilled water, in a beaker or container, labelled **Y**, provided at room temperature Note: this item is described differently in the question paper. This is intentional. Candidates should **not** be informed.	at least 20 cm^3	
Distilled water, in a beaker or container, labelled **W**, provided at room temperature	at least 150 cm^3	
10 cm^3 syringe	1	
5 cm^3 syringe	1	
Beakers or containers, capacity 50–100 cm^3	5	
Test-tubes, small, capacity 20–30 cm^3	7	
Test-tube rack, to hold 7 small test-tubes	1	
Glass rod	1	
White card, approximately 10 cm × 10 cm	1	
Container with approximately 200 cm^3 tap water, labelled **For washing**	1	
Container, capacity approximately 200 cm^3, labelled **For waste**	1	
Paper towels	8	
Glass marker pen, permanent	1	
Suitable eye protection	1	

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Preparation of materials

X, **S** and the stock solution of **iodine** may be prepared the day before the exam and should be kept in a covered container in a refrigerator overnight. **X** and **S** should be at room temperature before the start of the exam. The 0.01 mol dm^{-3} iodine solution must be prepared no more than one hour before the start of the exam.

- **X**, 2% starch solution

  This is prepared by putting 2 g of **soluble** starch into a small volume of distilled water and mixing to make a paste. Make up to 100 cm^3 with hot distilled water. Mix well.

  The starch solution must be at room temperature for the exam.

- **S**, 1% starch solution

  This is prepared by putting 1 g of **soluble** starch into a small volume of distilled water and mixing to make a paste. Make up to 100 cm^3 with hot distilled water. Mix well. It may be necessary to heat the solution to dissolve the starch.

  The starch solution must be at room temperature for the exam.

- **iodine**, 0.01 mol dm^{-3} iodine in potassium iodide solution

  Stock solution of iodine: 0.1 mol dm^{-3}
  This is prepared by putting 8.0 g of potassium iodide in a beaker or container. Add 2 cm^3 of distilled water to moisten the potassium iodide. Add 2.5 g of iodine **[MH][N]** (if necessary, crush to small pieces) to the moist potassium iodide, add 15 cm^3 of distilled water and stir well.
  When no more iodine dissolves, add another 15 cm^3 of distilled water and stir well.
  Repeat with two more volumes of 15 cm^3 of distilled water and then make up to a total volume of 100 cm^3.
  It is not essential that all the iodine dissolves.
  This gives a red-brown coloured 0.1 mol dm^{-3} iodine solution.

  Put 10 cm^3 of 0.1 mol dm^{-3} iodine solution into a beaker or container and make up to 100 cm^3 with distilled water. Mix well. This makes the 0.01 mol dm^{-3} iodine solution and is a yellow-orange colour.

  Prepare the 0.01 mol dm^{-3} iodine solution no more than one hour before the exam.

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[Turn over

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Materials and apparatus for Question 2

Each candidate will need:

materials and apparatus for each candidate	quantity	✓
Microscope with: ● an eyepiece lens, ×10 magnification ● a low-power objective lens, ×10 magnification ● a high-power objective lens, ×40 magnification	1 between 2	
Slide **L1**	1 between 2	

Preparation of materials

- Microscope

  Any lenses which are **not** ×10 or ×40 should be removed or replaced.

  For each candidate:
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[Turn over

PapaCambridge

Temperature of exam room ……°C

Results for Question **1(a)(ii)**

Results for Question **1(a)(iii)**

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Signed ..... (supervisor)

Name (in block capitals) .....

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Cambridge International AS & A Level

BIOLOGY **9700/35**

Paper 3 Advanced Practical Skills 1 **October/November 2020**

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  email info@cambridgeinternational.org
  phone +44 1223 553554

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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.

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Specific information for this practical exam

During the exam, the supervisor or other competent biologist (**not** the invigilator) should obtain the results specified on the supervisor's report by following the relevant steps in the question paper. The results should be recorded in the space provided on the supervisor's report.

Organisation of the exam

- Half the candidates should start on Question 1 and the other candidates should start on Question 2.
- For Question 2, each candidate must have uninterrupted use of a microscope for at least 55 minutes.

Materials to be supplied by Cambridge International

- Slide **M1**

  On receipt of the slides, check that they are labelled **M1** and that no slides are broken. The slides should **not** be viewed in advance of the exam. The material on the slides is confidential and must **not** be disclosed to candidates.

  The number of slides supplied by Cambridge International will be equal to half the candidate entry.

Return of slides to Cambridge International

Immediately after the exam, the slides must be:

- returned to Cambridge International in the boxes in which they were received, using the self-adhesive label supplied. The slides must **not** be included in the packet of scripts.

  or

- purchased using the order form enclosed with the slides, which should be completed and returned to Cambridge International. The order form must **not** be included in the packet of scripts. Slides and boxes will be charged at the rate of £3.25 per slide plus £1 per box.

If the slides are not returned or purchased by the deadline stated on the order form, the charge will be £3.75 per slide plus £1 per box.

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Materials and apparatus for Question 1

Each candidate will need:

materials and apparatus for each candidate	quantity	✓
2.0% glucose, in a beaker or container, labelled **R**, provided at room temperature (see **Preparation of materials**)	at least 50 cm^3	
[MH][N] Benedict's solution (qualitative) in a beaker or container, labelled **B**, provided at room temperature	at least 25 cm^3	
0.5% glucose, in a small test-tube, labelled **U**, provided at room temperature (see **Preparation of materials**)	2 cm^3	
Distilled water, in a beaker or container, labelled **W**, provided at room temperature	at least 150 cm^3	
10 cm^3 syringes	2	
Beakers or containers, capacity 50–100 cm^3	5	
Bunsen burner, tripod, gauze, bench mat and lighter or matches	1	
Beaker, capacity approximately 400 cm^3, with approximately 200 cm^3 water at 40–50 °C, suitable for heating as a water-bath, labelled **water-bath**	1	
Test-tubes, small, capacity 20–30 cm^3	5	
Test-tube holder	1	
Test-tube rack, to hold 6 small test-tubes	1	
Glass rod	1	
Container with approximately 200 cm^3 tap water, labelled **For washing**	1	
Container, capacity approximately 200 cm^3, labelled **For waste**	1	
Paper towels	8	
Glass marker pen, permanent	1	
Stop-clock or timer, showing seconds	1	
Suitable eye protection	1	

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Preparation of materials

- **R**, 2.0% glucose solution

  This is prepared by putting 2 g of glucose into a small volume of distilled water and mixing to make a paste. Make up to 100 cm^3 with distilled water. Mix well.

- **U**, 0.5% glucose solution

  This is prepared by putting 25 cm^3 of 2.0% glucose solution into a beaker. Make up to 100 cm^3 with distilled water.
  Each candidate will require 2 cm^3 of this in a small test-tube, labelled **U**.

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Materials and apparatus for Question 2

Each candidate will need:

materials and apparatus for each candidate	quantity	✓
Microscope with: ● an eyepiece lens, ×10 magnification ● a low-power objective lens, ×10 magnification ● a high-power objective lens, ×40 magnification	1 between 2	
Slide **M1**	1 between 2	
Clear plastic ruler, showing mm	1 between 2	

Preparation of materials

- Microscope

  Any lenses which are **not** ×10 or ×40 should be removed or replaced.

  For each candidate:
  - the microscope must be set up on low power
  - the slide must **not** be on the stage of the microscope.

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Supervisor's report

Syllabus and component number	9	7	0	0	/	3	5

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.

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Temperature of exam room ……°C

Results for Question **1(a)(ii)**

Results for Question **1(a)(iii)**.

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
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- ☐ the supervisor's reports relevant to these candidates
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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) .....

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Cambridge Assessment International Education

Cambridge International AS & A Level

BIOLOGY **9700/36**

Paper 3 Advanced Practical Skills 2 **October/November 2020**

CONFIDENTIAL INSTRUCTIONS

8645300361

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

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Organisation of the exam

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- For Question 2, each candidate must have uninterrupted use of a microscope for at least 55 minutes.

Materials to be supplied by Cambridge International

- Urea
- Slide **N1**

  On receipt of the slides, check that they are labelled **N1** and that no slides are broken. The slides should **not** be viewed in advance of the exam. The material on the slides is confidential and must **not** be disclosed to candidates.

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Materials and apparatus for Question 1

Each candidate will need:

materials and apparatus for each candidate	quantity	✓
soya bean extract in a small beaker, labelled **E**, provided at room temperature (see **Preparation of materials**) Note: This item is described differently in the question paper. This is intentional. Candidates should **not** be informed.	at least 10 cm^3	
5% urea solution in a small beaker, labelled **U**, provided at room temperature (see **Preparation of materials**)	at least 10 cm^3	
50% soya bean extract in a beaker or container, labelled **B**, provided at room temperature (see **Preparation of materials**) Note: This item is described differently in the question paper. This is intentional. Candidates should **not** be informed.	at least 10 cm^3	
Distilled water, in a beaker or container, labelled **W**, provided at room temperature	at least 100 cm^3	
Red litmus paper, 5 cm length	2	
10 cm^3 syringe	1	
5 cm^3 syringes	2	
Beakers or containers, capacity 50–100 cm^3	5	
Container with approximately 200 cm^3 tap water, labelled **For washing**	1	
Container, capacity approximately 300 cm^3, labelled **For waste**	1	
Dropping pipettes	3	
Spotting tile	1	
Forceps	1	
Scissors	1	
Paper towels	10	
Marker pen, for labelling spotting tile	1	
Stop-clock or timer, showing seconds	1	
Suitable eye protection	1	

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Preparation of materials

Urea solution, **U**, may be prepared the day before the exam.

The container should be covered and put in a refrigerator overnight.

The soya beans for the urease solutions, **E** and **B**, must be soaked the day before the exam, and extracted on the day of the exam.
The extract should be pre-tested to ensure it is active. If the pre-test shows no activity, a different batch of soya beans may be needed.

E, **B** and **U** should be at room temperature before the start of the exam.

- **E**, soya bean extract

  Put 100 g of dried soya beans into a large beaker with 100 cm^3 distilled water. Leave covered overnight. On the day of the exam put the soaked soya beans in a blender with an additional 100 cm^3 distilled water. Blend for 1 minute. If the soya beans are difficult to blend, add more distilled water, using the minimum needed to facilitate blending, up to a maximum of a further 100 cm^3.
  Strain the blended soya beans through muslin into a beaker ensuring that there is sufficient extract for each candidate.

  Pre-test for E:

  - put a 5 cm length of red litmus paper into a test-tube
  - put 1 cm^3 of **E** into the test-tube
  - put 1 cm^3 of **U** into the test-tube.

  You should observe a colour change in the red litmus paper within 2 minutes. If the colour change takes longer than 2 minutes, **either** reduce the volume of distilled water added **or** replace the soya beans.

- **B**, 50% soya bean extract

  This can be prepared by putting 50 cm^3 **E** into a beaker and adding 50 cm^3 distilled water to make a 50% soya bean extract. Mix well.

- **U**, 5% urea solution

  This is prepared by sprinkling 5 g of urea (supplied by Cambridge International) into 80 cm^3 of warm distilled water. Mix well. Make up to 100 cm^3 with distilled water.

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[Turn over

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Materials and apparatus for Question 2

Each candidate will need:

materials and apparatus for each candidate	quantity	✓
Microscope with: ● an eyepiece lens, ×10 magnification ● a low-power objective lens, ×10 magnification ● a high-power objective lens, ×40 magnification	1 between 2	
Slide **N1**	1 between 2	

Preparation of materials

- Microscope

  Any lenses which are **not** ×10 or ×40 should be removed or replaced.

  For each candidate:

  - the microscope must be set up on low power
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Syllabus and component number	9	7	0	0	/	3	6
Centre number							

Centre name .....

Time of the practical session .....

Laboratory name/number .....

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Temperature of exam room……..°C

Results for Question **1(a)(ii)**

Result for Question **1(a)(iv)**

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Signed ..... (supervisor)

Name (in block capitals) .....

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