

**GENERAL CERTIFICATE OF SECONDARY EDUCATION
 ENVIRONMENTAL AND LAND-BASED SCIENCE**

Amenity Horticulture (Higher Tier)

WEDNESDAY 18 JUNE 2008

Afternoon
 Time: 45 minutes

Candidates answer on the question paper
Additional materials (enclosed): None

Additional materials (required):
 Calculator
 Pencil
 Ruler (cm/mm)



* G U P / T 5 2 2 6 4 *

Candidate Forename

Candidate Surname

Centre Number

Candidate Number

INSTRUCTIONS TO CANDIDATES

- Write your name in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use blue or black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided.
- There are no separate marks for the quality of written communication, but make sure that your answers are written in clear and well-structured English.

INFORMATION FOR CANDIDATES

- The number of marks for each question is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **36**.

FOR EXAMINER'S USE		
		Mark
TOTAL	36	

This document consists of **12** printed pages.

Answer **all** the questions.

1 Grass in different situations is best cut by different types of lawn mower.

type of lawn mower

wheeled rotary

hover

cylinder

source of power

petrol

mains electricity

Choose the most appropriate **type of lawn mower** and **source of power** from the list above, for each of the following situations.

a large area of roughly cut grass on a steep slope

type of lawn mower

source of power

a small, fine, level lawn behind a semi-detached house

type of lawn mower

source of power

grass verges in a housing estate

type of lawn mower

source of power

[3]

2 Students are constructing some new greenhouse staging.

It is a task they have not carried out before.

They need to carry out a risk assessment.



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Here is the students' risk assessment for this activity.

(a) Complete the risk assessment. Put a **ring** around the correct line in each of the grey boxes. [3]

hazard	severity of possible accident	likelihood of possible accident	proposed action
trips over equipment	low	high	<input checked="" type="checkbox"/> increase light levels <input checked="" type="checkbox"/> keep paths clear <input checked="" type="checkbox"/> limit movement
electrocution from power tools	<input type="checkbox"/> low <input checked="" type="checkbox"/> medium <input type="checkbox"/> high	low	use RCD in circuit
sharp edges on aluminium components	medium	medium	<input checked="" type="checkbox"/> handle in pairs <input checked="" type="checkbox"/> use tools <input checked="" type="checkbox"/> wear gloves

(b) Identify a further hazard and complete the table above. [3]

3 This student plants some bulbs in a raised wall.

He wishes to add some shrubs.

He uses a loam soil of pH 6.5.



K Crafer / © OCR

State **two** important factors that he needs to consider when he chooses shrubs that will grow well in this raised wall.

1
.....[1]

2
.....[1]

4 Two students cover a bed of newly sown vegetables with fleece.



K Crafer / © OCR

A cloche could have been used to cover the bed.

Give **one** advantage and **one** disadvantage of using fleece.

advantage

.....[1]

disadvantage

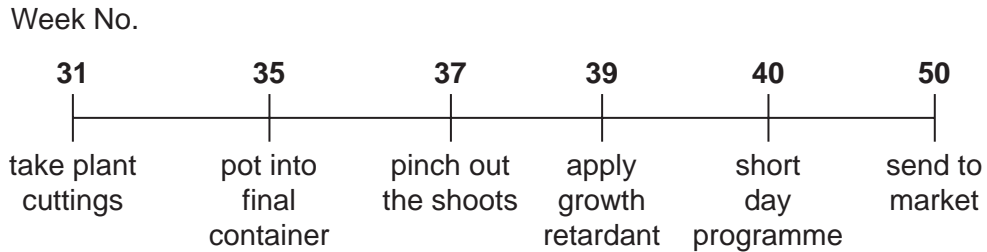
.....[1]

5 The Poinsettia (*Euphorbia pulcherrima*) is a popular Christmas houseplant.

The production blueprint (timescale) is set out below.

It is not possible to shorten this timescale if plants of the correct quality are to be produced.

blueprint for Poinsettia production



(a) What will be the effect of delaying the date of taking plant cuttings by two weeks?

- A reduced income - crop would not be ready for Christmas
- B reduced income - greater input of heat and light needed
- C reduced profit - larger amounts of staff overtime would be needed
- D reduced profit - larger amounts of water would be required

Answer **A, B, C or D**[1]

(b) According to the production blueprint, a short day programme is started in week 40. The Poinsettia crop must receive less than 9 hours daylight.

(i) What can be done in a commercial sized glasshouse to prevent the crop receiving **any** light at night?

.....
[1]

(ii) What other benefit will this treatment have on the profitability of the crop?

.....
[1]

(c) What is the purpose of pinching out the shoots at week 37?

.....
.....[1]

(d) The plant is ready for market at week 50.

Each plant has a care label attached.

Suggest **three** pieces of advice which should be included on the care label.

1.....
2.....
3.....[3]

6 Coir (coconut husk) is an alternative to peat for use in potting composts.

Some people think that coir is more environmentally friendly.

Others disagree.

Give **one environmental** reason why importing coir may be a poor choice.

.....
.....[1]

7 The National Fruit Collection includes more than 2300 cultivars of apple, 550 cultivars of pear and 220 cultivars of cherry.

The pear collection is now of considerable age so in need of re-propagation.

The new plants will be propagated by grafting.

Why has grafting been chosen as the propagation method rather than growing from seed?

- A Grafted plants will fruit more quickly than trees raised from seed.
- B Not all cultivars of pear produce seed.
- C Plants raised from seed will not be 'true to type'.
- D Seeds of some pear cultivars are slow to germinate.

Answer **A, B, C or D**[1]

- 8 The table shows the amount of wall-space allocated to seed packets in spring by different retail outlets.

retail outlet	wall-space (metres)
DIY store A	6
DIY store B	8
supermarket C	4
supermarket D	2
garden centre E	12
garden centre F	18

- (a) Suggest a reason why the supermarkets allocate lower amounts of wall space for the retailing of seeds.

.....
[1]

- (b) Give **two** reasons why garden centres have the largest range of seeds.

1.....
 2.....[2]

9 Students are planting a new bed of *Berberis*.

They plant the shrubs in some holes cut through black matting.



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What will be the largest benefit of the black matting to the newly planted shrubs?

- A black colour absorbs heat – less frost damage
- B reduces slug damage
- C shows where plants are located – stops trampling and damage
- D reduces weed growth

Answer **A, B, C** or **D**[1]

10 The table shows information about different types of greenhouse glazing.

type of glazing	light transmission	risk of breakage	rate of heat loss	expected life	cost
glass	94%	high	high	long	medium
single-walled polycarbonate	96%	low	high	medium	medium
twin-walled polycarbonate	85%	low	medium	medium	high
polythene	80%	medium	high	short	low
fibreglass	85%	low	medium	medium	high

(a) Using the information in the table, state **two** reasons why glass is still the most popular glazing choice for greenhouses.

1.....

 2.....
[2]

(b) Twin-walled polycarbonate is being increasingly used, particularly for the roofs of large structures.

From the information in the table, suggest **one** reason for the use of twin-walled polycarbonate in the roofs of large structures.

.....
[1]

- (c) The table includes information about single-walled and twin-walled polycarbonate glazing. Manufacturers are interested in evaluating a **triple-walled** polycarbonate material. Predict its performance under the following headings by ticking (✓) the correct box in each case.

light transmission

93%	<input type="checkbox"/>
85%	<input type="checkbox"/>
78%	<input type="checkbox"/>

rate of heat loss

high	<input type="checkbox"/>
medium	<input type="checkbox"/>
low	<input type="checkbox"/>

expected life

high	<input type="checkbox"/>
medium	<input type="checkbox"/>
low	<input type="checkbox"/>

[2]

11 This photograph was taken in the autumn.

It shows a student doing some routine maintenance on shrubs in a flower bed.



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Describe routine jobs the student will carry out on shrubs in a flower bed in autumn.

.....

.....

.....

.....

.....[3]

12 Many plants may be raised from seed.

One of the stages in this process is thinning out.

Give **two** reasons why thinning out of seedlings is so important.

1

2[2]

END OF QUESTION PAPER

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