

**GENERAL CERTIFICATE OF SECONDARY EDUCATION**  
**ENVIRONMENTAL AND LAND-BASED SCIENCE**  
Amenity Horticulture (Higher Tier)

**B492/02**

Candidates answer on the question paper.

**OCR supplied materials:**  
None

**Other materials required:**

- Electronic calculator
- Pencil
- Ruler (cm/mm)

**Wednesday 22 June 2011**  
**Morning**

**Duration: 45 minutes**



Candidate forename		Candidate surname	
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Centre number						Candidate number				
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**INSTRUCTIONS TO CANDIDATES**

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Answer **all** the questions.
- Do **not** write in the bar codes.

**INFORMATION FOR CANDIDATES**

- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is **36**.
- This document consists of **12** pages. Any blank pages are indicated.

Answer **all** the questions.

1 A student plants some seeds.

The seeds germinate.

The instructions on the packet of seeds state that the seedlings must be thinned out.



What are **two** main benefits of thinning out?

Put ticks (✓) in the boxes next to the **two** correct answers.

- even distribution of water to the soil
- more competition for nutrients
- more space for plants to develop
- reduces amount of soil needed
- weak or diseased plants are removed

[2]

**3**

**2** Polytunnels are often used in the growing of young trees and shrubs.

Some growers prefer to use polytunnels rather than greenhouses.

What is the **best** reason for choosing to use polytunnels?

- A** even distribution of heat
- B** greater storm resistance
- C** improved quality of growth
- D** more cost effective
- E** reduced disease infection

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

**3** ICT can be used to control a number of conditions inside a greenhouse.

Temperature is one of these conditions.

What is the name of the piece of equipment which controls the regulation of temperature?

Put a (ring) around the correct answer.

**boiler**

**fan**

**thermometer**

**thermostat**

**ventilator**

[1]

4 Pests and diseases in plant nurseries can be controlled by

- chemical methods
- biological methods

Which **two** of the following are advantages of using chemicals rather than biological control?

Put ticks (✓) in the boxes next to the correct answers.

- |   |                          |
|---|--------------------------|
| control is more rapid                                   | <input type="checkbox"/> |
| disease organisms are less likely to become resistant   | <input type="checkbox"/> |
| chemical residues remain within the crop                | <input type="checkbox"/> |
| special training is not needed to use chemicals         | <input type="checkbox"/> |
| one spray product will control a wide range of problems | <input type="checkbox"/> |

[2]

5 Cutting a lawn at the incorrect height may affect its quality.

Which **two** of the following, **A**, **B**, **C**, **D** or **E**, are likely to be the main effects of setting the height of cut **too high**?

- A** decrease in fertility
- B** expansion of fungal growth (fairy rings)
- C** increase in moss growth
- D** increase in weed growth
- E** reduction of fine leaved grasses

Answer **A**, **B**, **C**, **D** or **E** ..... and ..... [2]

6 The control of weeds is important for horticulturalists.

There are three main methods of control:

**chemical**

**cultural**

**mechanical**

The table shows some weeding tasks.

Complete the table using the words above.

The words may be used once, more than once or not at all.

<b>weeding task</b>	<b>method of control</b>
weedkiller on a gravel path	
strimmer around the base of a tree	
mulching around the base of a tree	
gravel chippings spread over a bed	

[2]

7 Modern production of houseplants is typically on a large-scale.



Give **two** reasons why automation is usually used to control growing conditions in large-scale production of houseplants.

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

8 Students have decided to replant an area with perennial herbaceous plants rather than using bedding plants.

State two **advantages** of making this decision.

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

9 Different types of electric lawn mower are available.



What type of lawn mower is this? .....

Suggest **one** situation where you would use this type of mower rather than any other type.

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

10 John is using an electric lawn mower.

The mower stops working because the fuse blows.

John does not have the correct spare fuse so he replaces it with a fuse of a higher rating.

This is a dangerous thing to do as there is a greater risk of electric shock.

Explain why.

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

- 11 Producing plants by asexual reproduction, such as cuttings, has both advantages and disadvantages.

Suggest three **disadvantages** of producing plants asexually.

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

- 12 (a) A manufacturer is producing a special cut-flower food called 'Fleur'.

'Fleur' is designed to:

- keep the water free from fungal and bacterial growth
- supply the flower stems with sugar.

'Fleur' is tested against traditional treatments.

Red roses were used in the test.

The roses were judged on appearance using the scale:

10 = perfect      1 = poor

treatment	day 1	day 3	day 5	day 7	day 9	day 11	day 13
distilled water	10	8	5	3	2	1	1
tap water	10	8	6	3	2	1	1
aspirin added	10	8	7	5	3	1	1
bleach added	10	7	3	1	1	1	1
coins added	10	7	4	2	1	1	1
lemonade added	10	10	8	6	4	2	1
'Fleur' added	10	10	8	6	5	3	1

Which treatment performed **best** and which performed **least** well?

- best .....
- least ..... [2]



(b) (i) What conclusion can be made about the performance after adding lemonade?

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

(ii) Suggest why.

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

(c) The researcher concludes that the results from distilled water and tap water are about the same.

What evidence is there from the data to support this conclusion?

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

(d) Suggest **two** things the manufacturer should do before using this information in her promotional adverts for 'Fleur'.

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

13 There are many potential hazards of using electrical equipment in nurseries.

The hazards are identified through a risk assessment.

One outcome of the risk assessment suggests using cordless equipment.

Using cordless equipment is not always possible so mains electrical equipment has to be used.

Describe **two** ways in which the risks of using **mains** electrical equipment may be reduced.

.....

.....

.....

..... [2]

14 Here is a headline from a horticultural magazine.

**Sales of peat-based compost show no signs of diminishing**

Peat-free products only account for 19% of total sales.

The Government targets for peat reduction are likely to be missed.

Outline the case for using peat-free products which might help to increase their use by gardeners.

.....

.....

.....

.....

..... [3]

- 15 Commercial growers are required to carry out special training and tests before they are allowed to use pesticides.

Suggest possible results of **not** applying pesticides correctly.

.....

.....

.....

.....

.....

.....

..... [3]

**END OF QUESTION PAPER**

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