

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)

Tuesday 22 June 2010
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 clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use 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. Additional paper may be used if necessary but you must clearly show your Candidate Number, Centre Number and question number(s).

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 This is part of a leaflet attached to a houseplant.



What is the best reason for **potting on** a plant?

- A controls pest and disease problems
- B encourages development of side shoots
- C prevents growth of moss on the pot
- D provides the plant with extra nutrients

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

2 Peat has traditionally been used as a major ingredient in growing media.

Which is the most widely used peat replacement?

- A composted bark
- B leaf litter
- C sharp sand
- D sphagnum moss

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

3 In 1995, the government set the target to reduce the use of peat by 90%.

They were hoping to achieve this by 2010.

What was the reason this target was set?

- A Economic: peat is expensive to harvest.
- B Ethical: peat harvesting destroys natural habitats.
- C Geographic: peat bogs are in isolated areas.
- D Political: the majority of peat is imported into the country.

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

4 The EU has introduced stricter rules for the use of pesticides.

This means that growers are looking for alternative ways of controlling pests and diseases in their crops.

Biological control is a popular option.

Which **two** of the following are the best advantages of using biological methods when compared to chemical control?

- A Chemical residues within the crop are reduced.
- B Less training is required to use biological controls.
- C More rapid control of the problem is likely.
- D More species can be controlled.
- E There is a reduced need to store dangerous chemicals on site.

Select **two** from **A, B, C, D** or **E** and [2]

5 Garden centres and nurseries sell garden plants all year round.

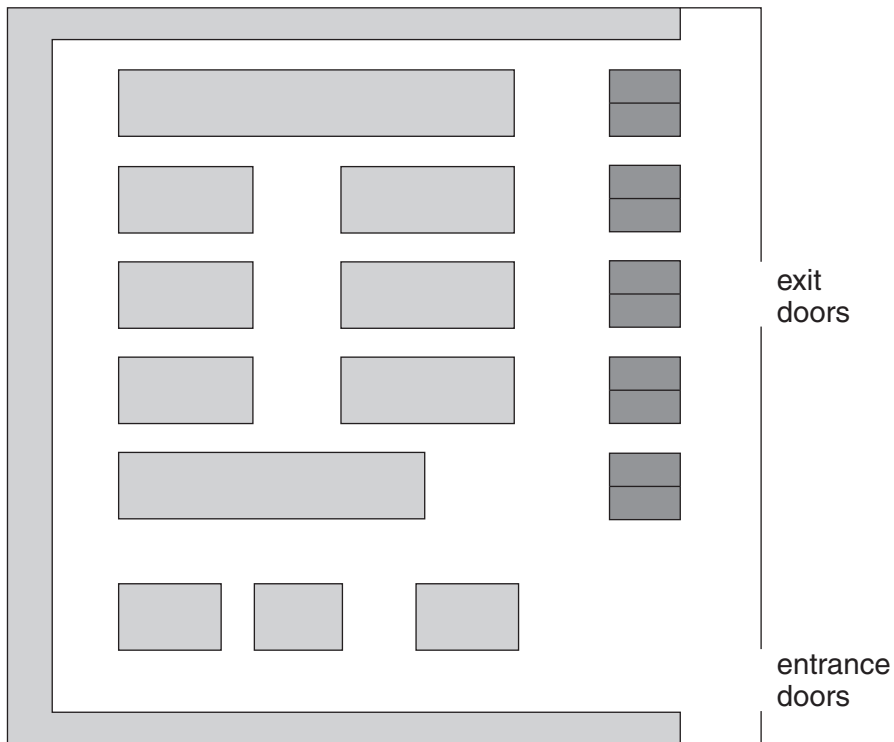
Supermarkets will often sell garden plants for a few weeks in the spring.

Why do supermarkets choose to sell garden plants for a shorter period?

- A Garden plants do not live for long in their stores.
- B Other product lines make more profit in other seasons.
- C Staff do not have product knowledge to give advice.
- D Supermarkets are not permitted due to planning laws.
- E Transport costs make all year round sales expensive.

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

6 This is a typical supermarket layout.



Key

 shelves

 tills

The manager of the supermarket wants to sell as many plants as possible.

Put an **X** on the place in the store where maximum sales will be expected.

Make sure the **X** can be clearly seen.

[1]

- 7 A customer complains about a houseplant they have bought.

The garden centre supervisor checks the plant and thinks that it may have been over-watered.

Which **two** of the following are signs that the plant may have been over-watered?

- A fertiliser cannot be seen in the compost
- B plant label picture has faded
- C plant growth is long and spindly (etiolated)
- D there are no white roots in the compost
- E wilting of the leaves of the plant

Select **two** from **A, B, C, D** or **E** and [2]

- 8 Protected structures such as polytunnels are used to produce container grown shrubs.

These shrubs will be displayed for sale in garden centres.

Which of the following is a major **disadvantage** to the grower of producing shrubs in a protective structure such as a polytunnel?

- A Higher humidity increases the risk of some diseases.
- B Plants in the polytunnel grow faster.
- C Polytunnels are unattractive to look at.
- D Weeds will grow faster under protection.

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

- 9 A gardener wishes to plant a tree at the bottom of their garden. The position is marked with an arrow.

The tree must not shade the whole of the garden.



Suggest a tree for this garden and give a reason for your choice.

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

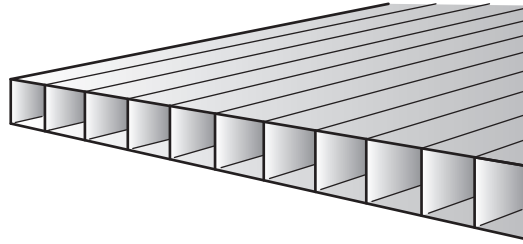
- 10 Designers of new greenhouses will often include ICT to manage the environment.

Name **one** condition within the greenhouse which may be controlled.

Give a reason why ICT is used.

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

11 Designers of a new greenhouse have glazed the roof with twin-walled polycarbonate rather than single panes of horticultural glass.



Suggest **two** reasons why they have made this choice.

- 1
- 2 [2]

12 A gardener has an electric hover mower to cut the lawn.

The mower has to be adjusted to match the growing conditions.

What adjustment should be made to the mower during a period of drought?

How would the gardener make this adjustment?

-
-
- [2]

13 Many people buy cut flowers and display them in a vase at home.

Explain **two** pieces of advice for somebody who has bought a bunch of cut flowers to help the flowers last longer.

- 1
- 2 [2]

14 Formal gardens frequently contain rose beds.

The Head Gardener will often have a written programme for their care and maintenance.



Suggest instructions for **three** of the main tasks within the written management plan.

Make sure you include:

- **when** each task should happen
- **how** each should be done.

.....

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..... [3]

15 A grower wishes to produce sunflowers for the cut flower market.

The grower wants to test a small crop before planting a large area.

A catalogue offers the following cultivars (varieties).

sunflower name	height in cm	seeds per packet	cost per packet
Arava Sunray (F ₁ hybrid)	60	20	£1.85
Irish Eyes	45	35	£1.35
Ruby Sunset	100	20	£2.40
Total Eclipse	50	20	£1.55
Western Sunset	75	30	£1.95

(a) 'Arava Sunray' is described as being an F₁ hybrid.

Suggest **two** advantages an F₁ hybrid could give the grower.

1

.....

2

..... [2]

(b) Which of these sunflowers is most likely to need staking?

Answer [1]

16 The grower tries the type of sunflower called 'Western Sunset'.

These are the records he kept on the first crop.

	number
seeds sown	500
seedlings emerged	450
plants after first hoeing	288
plants in bud	268
flowers produced	402

(a) Published data from the plant breeder states that a grower should expect a flower yield of 78.6% from the number of seeds sown.

(i) What is the difference between this trial crop and the published result?

..... [1]

(ii) What could be concluded from these observations?

.....

 [2]

(b) What percentage of the total seeds sown failed to germinate?

Answer % [1]

(c) In order to make the crop profitable, the grower must achieve a price 50% higher than their growing costs.

It costs £1.14 to produce each bloom.

How much must the grower charge for each bloom?

Answer [1]

Turn over

17 Dahlias are popular summer flowering plants.

Dahlias with brightly coloured flowers may be propagated from the plant's root tuber.

(a) Describe **when** and **how** a dahlia may be propagated from its root tuber.

.....

.....

.....

..... [2]

18 All businesses have a legal duty to carry out a risk assessment on their premises and the type of work undertaken.

Describe how a risk assessment would be carried out for a production nursery.

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..... [3]

END OF QUESTION PAPER



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