

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

B492/02

Candidates answer on the Question Paper
A calculator may be used for this paper

OCR Supplied Materials:
None

Other Materials Required:

- Pencil
- Ruler (cm/mm)

Wednesday 20 January 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, however additional paper may be used if necessary.

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 **16** pages. Any blank pages are indicated.

Answer **all** the questions.

1 A gardener wants to plant some tall shrubs in pots outside the house.

An expert at a garden centre recommends that a soil based compost might be more suitable than a compost based on peat.

Why does the expert recommend using soil based composts?

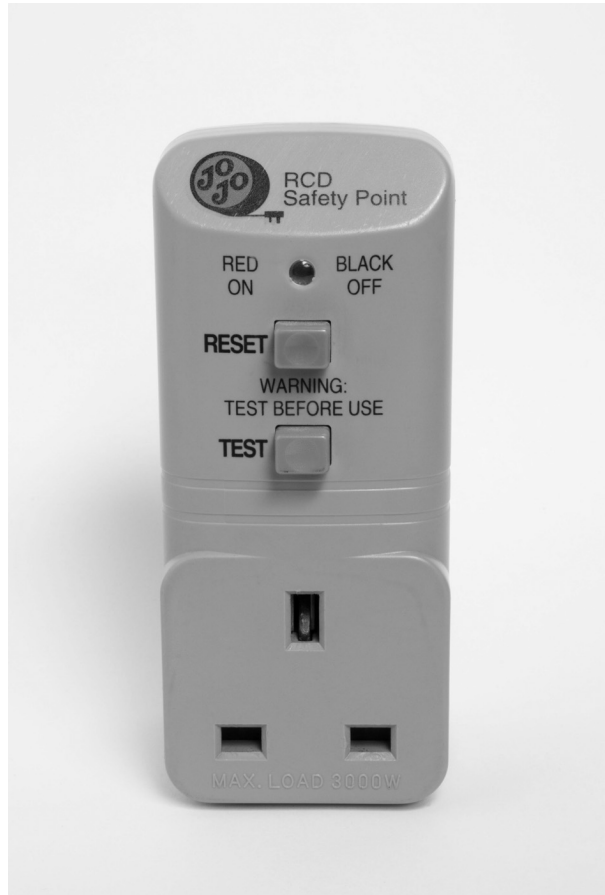
Soil based composts:

- A are cheaper to buy
- B are denser, adding more mass to the pot
- C contain fewer pests and diseases
- D give the garden centre greater profit.

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

2 The photograph is of a circuit breaker, or residual current device (RCD).

It is recommended that this is used when handling electrical equipment in the garden.



Why is the RCD recommended for use?

- A It detects high voltage across the wires.
- B It monitors the amount of current used by the equipment.
- C It prevents equipment from overheating.
- D It prevents the user from receiving a lethal shock.

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

3 The game of croquet requires an even, high quality playing surface.

This means that the grass has to be cut extremely short, very frequently.



Which type of mower is most suited to achieving the desired effect?

- A cylinder
- B hover
- C reciprocal
- D rotary

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

4 Name **three** trees that would be suitable as 'street trees' in a busy city.

- 1
- 2
- 3

[3]

- 5 Carrying out a risk assessment is important in this glasshouse. The risk assessment will minimise any possible hazards.



The table shows the incomplete risk assessment that was carried out.

Complete the risk assessment by filling in the empty boxes.

hazard	severity of possible accident	likelihood of possible accident	proposed action
trip over hose	low	high	
bacterial growth in warm hose water		low	
poisonous sap from plants	medium		put toxic plants away from path, use warning signs

[4]

6 Raising plants from seed is regarded as an easy way of gaining large numbers economically.



Which **one** of the following is the main **disadvantage** of raising plants from seed?

- A difficult to sow seeds at the correct depth
- B high humidity must be maintained at all times
- C high risk of virus spreading from seed
- D plants raised will be variable in growth habit
- E sterilised compost must be used

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

7 A buyer for a garden centre group is looking for new plants to add to its plant range.
She needs to find more plants suitable for winter hanging baskets.

Which **three** of the following characteristics are **most** useful for winter hanging basket plants?

- evergreen foliage
- fragrant flowers
- hardiness
- large root system
- tolerance of low pH
- trailing habit

1

2

3 [3]

8 The photograph shows a greenhouse built to a new design.
The design is based on a steel and aluminium frame.



Give **two** reasons why steel and aluminium were used rather than wood.

1

2 [2]

9 A new glasshouse is controlled using ICT.

This reduces labour costs.

Environmental conditions are monitored by sensors such as the one shown below.



(a) Name an environmental condition.

..... [1]

(b) Describe how the information from the sensor will be used to control this condition.

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

10 An increasing number of ornamental crops are being grown in protected structures.

This improves their quality and consistency.

However, this is more expensive.

The problems with pest and disease control in such structures are different from those when plants are grown outside.

In terms of disease and pest control, describe **one** advantage and **one** disadvantage of growing ornamental crops in glasshouses.

advantage

disadvantage [2]

11 TV 'garden makeover' shows always make lawns from **turf** rather than from **seed**.

Turf is more expensive but gives immediate results.

Other than cost, give **two** advantages of producing a lawn from **seed** rather than turf.

1

2 [2]

12 There are different kinds of lawns.

Each kind has a different use.

The lawns need different mixtures of seeds when they are first planted.

Look at the information in the table.

types of lawn	seeds				
	creeping red fescue %	Chewings fescue %	bentgrass %	dwarf ryegrass %	smooth stalked meadow grass %
show lawn	75	20	5	0	0
family lawn	10	0	0	90	0
shady lawn	75	10	5	0	10
easy care lawn	35	0	5	60	0

(a) Smooth stalked meadow grass is more tolerant of one environmental condition.

Name this condition.

..... [1]

(b) Which grass type is most resistant to trampling?

- A creeping red fescue
- B Chewings fescue
- C bentgrass
- D dwarf ryegrass
- E smooth stalked meadow grass

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

(c) A company produces a mixture called 'Simple Grass' which contains:

- 40% creeping red fescue
- 5% bentgrass
- 55% dwarf ryegrass.

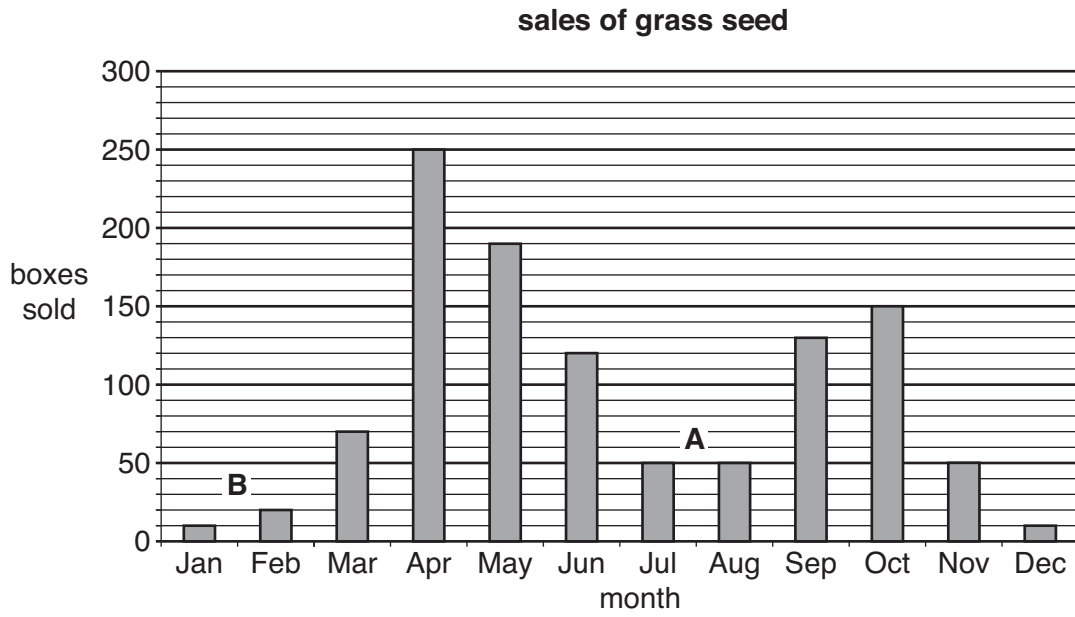
They claim a lawn planted with this seed mixture will be easy to look after.

Do you agree with the claim? State your reason. Use the information in the table.

.....

 [1]

13 Sales of 'Simple Grass' at a local garden centre are shown below.



Use the information from the bar chart to answer the following questions.

(a) Suggest **one** reason for the dip in sales at **A** and a **different** reason for the dip in sales at **B**.

A

B [2]

(b) The garden centre manager has calculated that they have sold 1100 boxes during the year.

If stock was unavailable for the two busiest months, what percentage of sales would be lost?

..... % [1]

14 A grower decides to market a new concept in 'grow your own' peppers.

They can be grown easily in patio pots.

The grower wants to market the product via the internet.



What do you consider to be **three** main advantages to the grower of using the internet rather than selling via retail garden centres?

1

2

3 [3]

15 A householder has asked a designer for advice regarding plants suitable for their garden.

The brief is to produce a garden which is:

- low maintenance
- 'child friendly'
- colourful in the summer.

The soil is slightly alkaline.



Discuss **three** additional factors that the designer would need to consider when compiling a list of suitable plants for their client.

1

.....

2

.....

3

..... [3]

16 The photograph shows students propagating a range of plants asexually.



Describe, in detail, **one** method of propagating plants asexually.

.....

.....

.....

..... [2]

END OF QUESTION PAPER

15
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