

**Wednesday 20 June 2012 – Morning**

**GCSE ENVIRONMENTAL AND LAND-BASED SCIENCE**

**B492/04** Amenity Horticulture (Higher Tier)

Candidates answer on the Question Paper.

**OCR supplied materials:**

None

**Other materials required:**

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

**Duration:** 45 minutes



Candidate forename		Candidate surname	
--------------------	--	-------------------	--

Centre number						Candidate number				
---------------	--	--	--	--	--	------------------	--	--	--	--

**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. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- 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).
- 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.

For Examiner's Use	
<b>TOTAL</b>	

Answer **all** the questions.

1



Plants chosen for summer hanging baskets must have good properties.

Which **one** of the following is a good property for a plant in a summer hanging basket?

- A expensive to buy
- B repeat flowering
- C tall growing
- D slow to flower

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

3

2 Houseplant producers 'pot on' their plants at regular stages of growth.

Put ticks (✓) in the boxes next to the **two** best reasons why they do this.

- allows plants to get water
- better drainage for the roots
- greater availability of nutrients
- more room for root development
- reduces pests and diseases

[2]

3 Nursery stock growers sometimes use glass cold frames for hardening off stock in the spring rather than using cloches.

What are the advantages of glass cold frames compared with cloches?

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

- cheaper to buy
- better insulation properties
- better light transmission
- easily portable
- less likely to blow away

[2]

4 Genetic engineering can be used to breed plants.

Which statement is a benefit of using genetic engineering?

- A faster breeding process
- B reduced root growth in all plants
- C slower seed development
- D uses less expensive equipment

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

5 The owner of a commercial greenhouse is able to monitor a range of growing conditions.

She uses special equipment to do this.

Draw a straight line to join the correct piece of **equipment** to the **growing condition** it is used to monitor.

<b>equipment</b>	<b>growing condition</b>
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">hygrometer</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">pH meter</div> <div style="border: 1px solid black; padding: 5px;">thermometer</div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">acidity</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">humidity</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">light</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">nutrients</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">temperature</div> <div style="border: 1px solid black; padding: 5px;">water</div>

[3]

6 A gardener wants to buy some turf to grow a lawn.

The supplier states that the grass mixture contains ryegrass.

Turf containing ryegrass is most likely to be:

- A drought resistant
- B hard wearing
- C inexpensive
- D shade tolerant

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

7 Weeds can be controlled by a number of different methods.

Give one way weeds can be controlled **mechanically**.

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

8 A garden centre assistant is helping a customer choose a lawn mower.

The assistant explains the differences between a mower powered by mains electricity and one with a petrol engine.

Give **one** advantage and **one** disadvantage of choosing a mower which uses mains electricity.

advantage

.....  
.....

disadvantage

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

9 A gardening magazine has this headline about the use of peat.

**The use of peat in gardens is  
damaging the environment**

Alternatives to peat are being investigated for  
use in potting composts.

Suggest **two** materials that could be used as a replacement for peat in a potting compost.

1 .....

2 .....

[2]

10 Hover mowers are very popular and are very useful in small gardens.

They can be used in spring, summer and autumn.

What change needs to be made to the mower when mowing in the autumn?

.....  
.....

How would this change be made?

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

11 A trade magazine contains the following article.

**COUNCILS REJECT  
HORSE CHESTNUTS AS STREET TREES**

Local residents complain of dents on the bonnets of their cars.  
Conkers falling from the trees are thought to be the cause.

Suggest a suitable tree to plant as a replacement for horse chestnuts.

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

12 These plants have been pruned to make them this attractive shape.



Give **two** reasons, other than improving the size and shape of a plant, for carrying out pruning.

.....

.....

..... [2]



13 This glasshouse has an aluminium frame.



Give **two** advantages that an aluminium framed glasshouse would have compared with a wooden framed one.

.....

.....

..... [2]

14 The table shows the mean prices of bunches of daffodils sold at market.

**mean prices of bunches of daffodils (p) in each month**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>2010</b>	57.1	57.9	43.5	28.4	30.5					50.0	48.7	55.1
<b>2009</b>	58.6	57.0	48.9	40.3						52.1	60.5	58.1
<b>2008</b>	50.7	46.9	39.2	36.3					54.5	49.1	52.7	56.8

Suggest **two** reasons for the reduction in prices in April.

.....

.....

..... [2]

15 Scientists carried out experiments on orchid plants.

They treated the plants with two different growth retardants.

Different concentrations of each growth retardant were used.

They looked at the quality of flowers produced by the orchids.

The table shows the results.

The flowers were measured for quality on a scale of 1–5.

1 = very poor; 2 = poor; 3 = average; 4 = above average or 5 = excellent

growth retardant	concentration applied (parts per million)	days to flower	flower shoot length (cm)	flower quality (mean value)
Alfa	0	43	26.7	2.0
	2550	44	21.1	2.0
	5100	46	16.8	2.7
	7650	47	11.7	3.3
Beta	0	42	26.6	2.1
	32	43	23.7	2.4
	64	43	20.9	3.0
	96	46	17.4	3.6

(a) What is the decrease in flower shoot length caused by doubling the concentration of ‘Beta’ applied to the orchids?

Answer ..... cm [1]

(b) Which combination of growth retardant and concentration gives the best flower quality?

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

(c) Using the data provided, what is the relationship between days to flower, flower shoot length and flower quality?

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

**16** Growers in the UK who use glasshouses face serious competition from growers in warmer climates.

Growers in warmer climates have lower energy costs.

UK growers have invested in ICT to help them compete.

How can a grower using a glasshouse in the UK use ICT to reduce production costs?

.....

.....

.....

..... [3]

**17** Newspapers report that the number of sales using the internet are greater than ever.

Sales of plants using the internet have not increased as much as sales for other products.

Explain why.

.....

.....

.....

..... [3]

18 A gardener notices a new type of daffodil growing among the others.  
He wants to produce more bulbs of this new type.  
He needs to propagate the bulb.



Describe how to propagate from a bulb.

.....

.....

..... [2]

**END OF QUESTION PAPER**

**Copyright Information**

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website ([www.ocr.org.uk](http://www.ocr.org.uk)) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact the Copyright Team, First Floor, 9 Hills Road, Cambridge CB2 1GE.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.