

Monday 30 January 2012 – Afternoon

GCSE ENVIRONMENTAL AND LAND-BASED SCIENCE

B492/04 Amenity Horticulture (Higher Tier)

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

Duration: 45 minutes

OCR supplied materials:
None

Other materials required:

- Pencil
- Ruler (cm/mm)



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	
TOTAL	

Answer **all** the questions.

1 New lawns can be produced from seed or from turf.

Which one of the following is the best reason for choosing **turf**?

- A biodiversity – contains a broader range of grasses
- B cost – the raw materials are cheaper
- C environmental – a smaller carbon footprint
- D time – a quicker result is achieved

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

2 Electrical equipment, such as hedge clippers, needs to have a fuse.

Why is a fuse needed?

- A allows safe servicing of electrical equipment
- B prevents damage from excessive current flow
- C regulates the voltage in the equipment
- D stops broken equipment from working

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

3 Commercial growers will often install CO₂ enrichment material into their glasshouses.

Which combination of conditions will be needed for CO₂ enrichment to be most effective?

- A high light levels and high temperature
- B high light levels and low temperature
- C low light levels and high temperature
- D low light levels and low temperature

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

4 ICT can be used to control the conditions in commercial glasshouses.

Which **two** of the following are considered by growers to be the greatest benefits of using ICT?

- A A growing 'blueprint' (schedule) can be followed very closely.
- B Glasshouses may be constructed in the countryside.
- C Less visual pollution through ICT use.
- D Reduction in lorry movements in the nursery.
- E Staff do not need to work as many anti-social hours.
- F Thermal insulation properties of glasshouses are better.

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

5 Horticultural fleece is often used in outdoor plant production.



Select the **three** best reasons why horticultural fleece is used so widely.

- A easy to see in the field
- B increases temperature around crop
- C inexpensive to cover large areas
- D prevents some plant pests from getting to the crop
- E prevents water getting to the crop
- F weeds do not grow underneath it

Answer **A, B, C, D, E** or **F** [3]

6 Potting composts have different properties.

Write each property into its correct place in the table.

property

the more difficult compost to wet when it is dry

the heavier compost when it is wet

the lighter compost to carry

the better compost for hanging baskets

soil-based potting compost	peat-based potting compost

[2]

7 A new ornamental strawberry plant has pink flowers and green and white foliage.

The plant does not breed true from seed so it has to be propagated asexually from runners.

Give a brief description of how this ornamental strawberry plant can be propagated from **runners**.

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

8 Fran decides to build a glasshouse.

She looks at different materials to make the frame.

Give **two** advantages of a galvanised steel frame compared with a wooden one.

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

9 Research suggests that the demand for potting composts is increasing in the UK.

To meet this demand, producers are developing alternatives to peat-based composts.

State **two** reasons why alternatives to peat are needed.

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

10 Some students are planting up a new shrub bed.



Apart from poor behaviour, briefly describe **three** hazards that they need to be aware of when carrying out this task.

.....

.....

..... [3]

11 Sarah and Catherine have been given some shrubs to plant in this bed.



Suggest **two** factors about the bed which need to be considered if these plants are going to grow well.

.....

.....

.....

..... [2]

12 Simon grows Christmas trees.

He needs to control weeds in his plantation.

The table shows some different ways that he can do this.

treatment	cost of treatment per tree (p)	effectiveness (%)	risk of damage to tree
bark chippings	42	70	none
continuous plastic mulch	44	82	none
individual plastic mulch squares	37	78	none
mow	24	65	low
weedkiller	41	98	low

(a) The planting density for Christmas trees is normally 2500 trees per hectare.

What would be the cost for weedkiller treatment on a 10 hectare plantation?

..... [1]

(b) Using weedkiller is not the cheapest treatment but it controls the most weeds.

Other than to reduce competition with the crop, why does the grower choose to kill-off the most weeds?

.....
 [1]

13 The table shows the effects of five weedkillers on weeds in a Christmas tree plantation.

weed type	weedkiller				
	glufosinate ammonium	glyphosate	metaoxon	paraquat	propyzamide
annual meadow grass	S	S	S	S	S
creeping buttercup	S	S	MS	MS	MS
fat hen	S	S	MS	S	MS
ground elder	MS	S		S	MS
white dead nettle	S	S		S	S
wild oat	MS	S	R	S	MR

Key: S = susceptible
 MS = moderately susceptible
 MR = moderately resistant
 R = resistant
 blank = not tested

(a) Glyphosate appears to be the most effective chemical listed.

However, it is significantly more expensive than the other treatments and is most likely to cause damage to the trees.

Suggest how the grower could achieve the same chemical control without using glyphosate.

Explain your reason.

.....

.....

.....

..... [2]

(b) Metaoxon has not been tested on two of the weed species.

Make a prediction about the effectiveness of this weedkiller on each of these weeds.

Explain your answers using information in the table.

.....

.....

.....

.....

.....

..... [3]

14 Supermarkets do not normally offer a wide range of gardening items all year round.

Garden centres and nurseries normally do.

Suggest **two** reasons for these differences.

.....

.....

.....

..... [2]

