

**GENERAL CERTIFICATE OF SECONDARY EDUCATION
ENVIRONMENTAL AND LAND-BASED SCIENCE**

B492/02

Amenity Horticulture
(Higher Tier)

**Monday 19 January 2009
Morning**

Duration: 45 minutes

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

OCR Supplied Materials:
None

Other Materials Required:

- Calculator
- Pencil
- Ruler



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.

FOR EXAMINER'S USE		
		Mark
TOTAL	36	

Answer **all** the questions.

- 1 Many different types of compost are available to growers.

Peat-based and soil-based are two of the types.

Which **one** of the following is true when comparing a bag of peat-based compost with a similar sized bag of soil-based compost?

Peat based composts have:

- A greater levels of nutrients
- B less mass
- C lower pH values
- D wider ranges of nutrient types

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

- 2 Garden plants can be bought in nurseries or in supermarkets.

Which **two** of the following are typically true about the sale of garden plants in supermarkets?

- A Large customer numbers mean no wastage.
- B Large staff numbers mean plenty of advice is available.
- C Plants are only available for specific seasons, not all year.
- D The range of plants available is smaller than at a nursery.
- E Warm conditions in the store mean that the plants flower earlier.

Choose **two** answers from **A, B, C, D or E** [2]

- 3 Growers can use either chemical methods or biological methods to control pests and diseases.

Many supermarkets now require suppliers to use biological methods.

Which of the following is true for **all** biological control methods?

They are:

- A harmless to the environment
- B killed by extremely low temperatures
- C naturally occurring organisms controlling the problem
- D quicker at controlling the problem than chemicals

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

4 Plants need to grow well in a family garden.

Garden designers need to be precise in the plants they choose to use.



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State **four** factors in addition to size and colour that need to be considered.

- 1
- 2
- 3
- 4 [4]

5 Specialist pruning techniques affect the shape and production of plants.

These apples have been pruned in cordon style.



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Choose **two** statements that describe a cost benefit of pruning apples in cordon style.

- A fewer leaves so lower cost of leaf collection in autumn
- B fewer leaves so more even-coloured fruit of better quality
- C prunings used to produce new trees
- D reduction in pests and diseases so less use of chemicals
- E reduction in yield so less labour to pick fruit
- F restricting size of trees so picking is quicker

Choose **two** answers from **A, B, C, D, E** or **F** [2]

6 Students are moving a large plant in a heavy pot.

They are using a trolley to help move it.



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Suggest **two** ways the students could move this plant more safely.

- 1
 - 2
- [2]

7 Breeders have produced a new dwarf narcissus.



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Large numbers of this narcissus can be produced by dividing the bulb.

(a) Describe how this would be done.

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

(b) Give **one** advantage and **one** disadvantage of this method, compared to saving seed from the flowers.

advantage

.....

disadvantage

..... [2]

8 The back of a seed packet is shown below.

Poppy (Paeony) Purple Passion
Papaver somniferum

Big, dramatic blooms with a sumptuous 'crumpled' appearance on tall stems with blue-gray foliage. Easy to grow, perfect for borders or spectacular in groups.

FOR OUTDOOR SOWING

When March to May or August to September

Where In a prepared seed bed in flowering position

How Sow thinly in rows 30cm (12in) apart
 Cover with 0.5cm (quarter inch) of fine soil
 Firm gently and keep moist
 Seedlings appear 14-28 days

Care When large enough thin to 20cm (8in) apart
 Keep moist and weed free
 Protect late sowings with cloches in winter

Flowers June to October. Remove dead heads to prolong flowering
 Late sowings flower the following year

Tip *The large seed pods are very decorative*

CAUTION: *Harmful if eaten*

Average
750 seeds

HARDY ANNUAL


▲ 90cm (3ft) ◀ 30cm (12in) ▶ ○ ●

Foil packed for freshness

J	F	M	A	M	J	J	A	S	O	N	D

QUALITY GUARANTEE
 We are proud of our high quality. If you are not completely happy with the performance of these seeds we will replace them

£1.59



5 010931 007028 >

Sow by **2009 A**

The seed packet states 'when large enough, thin to 20 cm (8 in) apart'.

Suggest **two** reasons why this is important.

- 1
- 2

[2]

Turn over

9 Garden magazines report a trend in retail nurseries.

GARDENERS WEEKLY
Bedding Plants sales are down!
**Consumers buying
more permanent plants**

Suggest **two** reasons for this trend.

1

.....

2

..... [2]

10 Keeping plants alive in large planters in offices is often difficult.

Plants do not always get the optimum growing conditions.



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(a) Name **one** growing condition which could be improved.
..... [1]

(b) What equipment would be required to bring this change about?
..... [1]

11 A London borough wishes to plant more trees to line its streets.

The data below shows the types of trees available and their features.

tree type	height	spread	pollution tolerance	tolerance of soil compaction	disease resistance	evergreen or deciduous
London Plane	large	large	★★★★★	★★★★	★★★★	deciduous
Fastigate Hornbeam	large	medium	★★★★	★★★★★	★★★★	deciduous
Chanticleer Pear	medium	medium	★★★★★	★★★	★★★★	deciduous
Photinia	small	small	★★★★	★★★	★★★	evergreen
Robinia	medium	medium	★★★★	★	★	deciduous
Rowan	small-medium	small-medium	★★★★	★★★	★★★★	deciduous
Ginkgo	medium	small	★★★★	★★★	★★★★	deciduous

Key: ★ = poor ★★ = below average ★★★ = average ★★★★ = good ★★★★★ = excellent

(a) In the past the London Plane has been a popular choice for planting along streets.

Using the data, suggest **two** reasons why.

1.....

 2.....
 [2]

(b) For a certain street, the borough requires a tree of medium height and good disease resistance.

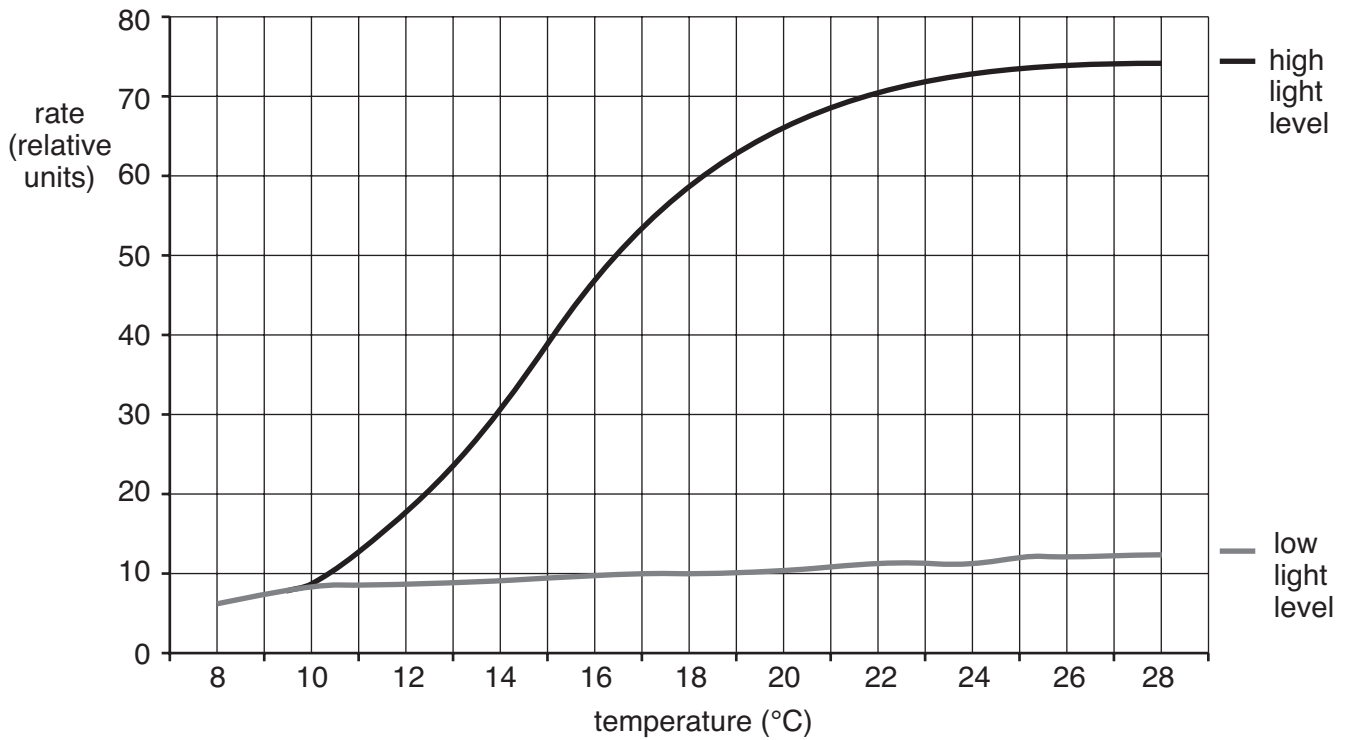
Suggest **two** trees from the list that would meet this need.

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

12 Tim wants his glasshouse flower crop to be more productive.

He found this information on a website.

The rate of photosynthesis in a glasshouse flower crop



(a) Referring to the data, when would the installation of supplementary lighting be of benefit?

.....

.....

..... [1]

(b) Tim considered carbon dioxide enrichment for the glasshouse crop.

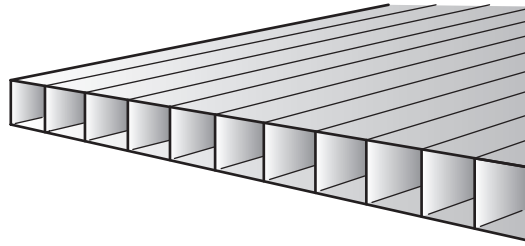
This may not be profitable in some situations.

State **one** of these situations, giving the reason why.

.....

..... [1]

- 13 Twin-walled polycarbonate is often used to glaze the roofs of large commercial greenhouses. Many people consider it to be a better choice than horticultural glass.



Describe **two** different reasons why this material could be considered as a better choice than horticultural glass.

- 1
-
- 2
- [2]

- 14 The government has set targets for 90% of the peat used in growing media to be replaced by other materials by 2010.

There is concern that the use of peat has a significant environmental impact.

Give **two** arguments in support of the reduction of peat in growing media, and **one** argument against.

.....

.....

.....

.....

.....

.....

..... [3]

- 15 The managers of these commercial glasshouses wish to install ICT to control the environmental conditions.

They believe that it would save the business money.



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Describe **other** benefits that are likely to occur.

.....

.....

.....

.....

.....

.....

.....

.....

..... [3]

END OF QUESTION PAPER

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