



Candidate Number:

Candidate Name:

Centre Number/Name:

**RHS LEVEL 3 ADVANCED/DIPLOMA IN HORTICULTURE
WRITTEN EXAMINATION**

2:00pm Wednesday 4th July 2007

IMPORTANT – Please read carefully before commencing.

- i) The duration of the papers in Module **E** is **2 hours**.
- ii) Answer **ALL** questions in Section **A**.
- iii) **ALL** questions in Section **A** carry equal marks.
- iv) Write your answers legibly in the spaces provided.
- v) Use metric measurements **ONLY**.
- vi) Where plant names are required, they should include genus, species and where appropriate cultivar.

MODULE E

**Design of Ornamental Gardens
Plant Selection, Establishment & Maintenance
Ornamental Landscape Construction**

Section A – Short Answer Questions

Please turn over/.....

ANSWER ALL QUESTIONS

MARKS

Q1 Name the genera and species of grasses suitable for a high quality lawn. **2**

.....

.....

.....

.....

.....

Q2 Explain the difference between hardy and half-hardy bedding plants, naming **ONE** example of **EACH**. **2**

.....

.....

.....

.....

.....

Q3 Evaluate **TWO** distinct surface materials suitable for children's play areas. **2**

.....

.....

.....

.....

.....

Q4 Name **TWO** plants from different genera suitable for a low formal hedge. **2**

.....

.....

.....

.....

.....

Please see over/.....

ANSWER ALL QUESTIONS

MARKS

Q5 State **TWO** factors, which affect the depth and spacing of drainage pipes.

2

.....

.....

.....

.....

.....

Q6 Name **FOUR** points to consider before constructing a flight of garden steps.

2

.....

.....

.....

.....

.....

Q7 Define the term 'harmony' and give **TWO** examples relating to garden design.

2

.....

.....

.....

.....

.....

Q8 List **FOUR** physical factors to be considered when selecting a site for a new garden.

2

.....

.....

.....

.....

.....

Please turn over/.....

ANSWER ALL QUESTIONS

MARKS

Q9 Explain the different uses for **EACH** of the following types of plan:

- a) site;
- b) concept.

2

.....

.....

.....

.....

.....

Q10 Name **TWO** examples of formal and informal screening within the garden.

2

.....

.....

.....

.....

.....



RHS LEVEL 3 ADVANCED/DIPLOMA IN HORTICULTURE WRITTEN EXAMINATION

2:00pm Wednesday 4th July 2007

IMPORTANT – Please read carefully before commencing.

- i) The duration of the papers in Module **E** is **2 hours**.
- ii) Answer **ONE** question only from **EACH** of the sections **B**, **C** and **D**.
- iii) **ALL** questions carry equal marks.
- iv) Write your answers legibly in the answer booklets provided.
- v) Use metric measurements **ONLY**.
- vi) Where plant names are required, they should include genus, species and where appropriate cultivar.

MODULE E

**Design of Ornamental Gardens
Plant Selection, Establishment & Maintenance
Ornamental Landscape Construction**

Sections B, C & D

Structured Questions

Please turn over/.....

Section B – Design of Ornamental Gardens

Answer ONE question only from this section

		MARKS
Q1	a) Describe the design principles for EACH of the following garden styles:	
	i) contemporary;	3
	ii) formal;	3
	iii) informal;	3
	iv) traditional.	3
	b) Explain how the relationship between the house and garden is used in garden design.	8
Q2	a) Describe TWO methods of carrying out a site survey, including the use of equipment and recording techniques.	12
	b) Explain how variations in level may be measured and recorded.	8

Section C – Plant Selection, Establishment & Maintenance

Answer ONE question only from this section

		MARKS
Q3	a) Describe, in chronological order, the annual maintenance necessary to maintain an established rock garden to a high standard.	8
	b) State and explain the reasons for selecting TWO suitable NAMED plants for EACH of the following situations:	
	i) scree bed;	3
	ii) rock garden;	3
	iii) alpine meadow;	3
	iv) alpine trough.	3

- | | | |
|-----------|---|----------|
| Q4 | a) State the factors that may affect water clarity in a garden pond. | 8 |
| | b) Describe the selection and quality criteria for aquatic plants for a garden pond. | 4 |
| | c) Describe the maintenance of FOUR different NAMED aquatic plants over a growing season. | 8 |

Section D – Ornamental Landscape Construction

Answer ONE question only from this section

- | | | MARKS |
|-----------|---|--------------|
| Q5 | a) Explain how top soil can be efficiently stored during the construction stage of a major development. | 6 |
| | b) Describe how soil structure can be improved when construction is complete. | 6 |
| | c) Evaluate FOUR distinct methods of improving drainage of the site prior to planting. | 8 |
| Q6 | a) List and describe FIVE distinct types of fencing and name an appropriate garden situation for EACH . | 10 |
| | b) Give details of the materials and method of construction of a fence for ONE of the types listed in a), using clearly labelled diagrams. | 10 |

© These questions are the property of the Royal Horticultural Society.
They may not be reproduced or sold.

The Royal Horticultural Society, Wisley, Woking, Surrey. GU23 6QB



RHS LEVEL 3 ADVANCED/DIPLOMA IN HORTICULTURE WRITTEN EXAMINATION

Wednesday 4th July 2007

MODULE E

Design of Ornamental Gardens Plant Selection, Establishment & Maintenance Ornamental Landscape Construction

Examiners Report

Candidates Registered	348				
		Total Candidates Passed			
Candidates Entered	289	83%	Passed with Commendation	103	35.64%
Candidates Absent	45	12.93%	Passed	154	53.28%
Candidates Deferred	8	2.3%	Failed	32	11.07%
Candidates Withdrawn	6	1.72%			

Section A – Short Answer Questions

General Comments

It was reassuring to discover that there were few areas of the question paper that were less popular than others, indeed candidates' answers were generally good to excellent and little difficulty was experienced either in interpretation or answer construction. Horticultural questions were well answered, candidates seemed also to enjoy the questions relating to hard landscape construction and to the concept of harmony in garden design. As in other years, candidates are reminded that it is important to read the question carefully before starting to write the answer.

Q1 Name the genera and species of grasses suitable for a high quality lawn.

Candidates found this question easy and were able to name a range of genera and species suitable for the production of a fine lawn. While it may be accepted that ryegrass cultivars are increasingly popular in fine lawn mixes in order to give resilience to the lawn, here it is important that candidates list suitable cultivars in order to gain marks. Simply quoting ryegrass is not sufficient.

Q2 Explain the difference between hardy and half-hardy bedding plants, naming **ONE** example of **EACH**.

Bedding plants come in many shapes and forms and so there was a wide variety of choice for candidates. This was a popular question and it was well answered. Candidates were well versed in the differences between hardy and half-hardy bedding and were able to give good examples of each sort.

Q3 Evaluate **TWO** distinct surface materials suitable for children's play areas.

Most candidates were able list two distinct surface materials suitable for a children's play area. The question was well answered by the majority of candidates and answers showed a good understanding of the requirements found in suitable surfacing materials. Evaluation of materials was required and it was not sufficient simply to list materials.

Q4 Name **TWO** plants from different genera suitable for a low formal hedge.

This was a popular question and was very well answered. Most candidates were able to name two different and distinct plants suitable for the production of a low formal hedge. Most small leaved plants were acceptable but where candidates named plants with coarse bold foliage that would have looked unsuitable, marks were not awarded.

Q5 State **TWO** factors, which affect the depth and spacing of drainage pipes.

The spacing and depth of drain pipes is dictated by a number of site specific factors and where candidates listed any two from soil texture, site use, rainfall volumes, slope and depth of cultivation good marks were allotted. Candidates found little difficulty here and the question was generally well answered.

Q6 Name **FOUR** points to consider before constructing a flight of garden steps.

Hard landscape construction appears to be well covered in the course syllabus. Candidates were able to list four points to consider before constructing a flight of garden steps and gave thoughtful consideration to height and depth of tread, overall rise of the full set of steps, the age range and ability of people liable to use the steps, the materials to be used, cost as well as health and safety aspects. Consequently very good marks were awarded.

Q7 Define the term 'harmony' and give **TWO** examples relating to garden design.

Most candidates were able to define and explain the term harmony as it is applied to garden design. A good understanding of the role of colour and use of materials to create harmony was evident and some good examples were quoted. Candidates often gained full marks in this question.

Q8 List **FOUR** physical factors to be considered when selecting a site for a new garden.

There were some difficulties in the selection of four physical factors to be considered when selecting a new site for a garden. Cost and services are not necessarily physical factors but aspect, orientation, slope, microclimate, soil type and drainage were most commonly correctly quoted.

Q9 Explain the different uses for **EACH** of the following types of plan:

- c) site;
- d) concept.

The differences between site plans and concept plans were generally well displayed and candidates found little difficulty with this question. Explanations were full and accurate.

Q10 Name **TWO** examples of formal and informal screening within the garden.

Candidates displayed a good understanding of the terms formal and informal when applied to screening in the garden and responses showed good evidence of their knowledge of gardens and landscapes they had visited.

Section B – Design of Ornamental Gardens

Q1 a) Describe the design principles for **EACH** of the following garden styles:

- v) contemporary;
- vi) formal;
- vii) informal;
- viii) traditional.

Most candidates successfully undertook this question rather than Q2. Candidates who structured their answers and presented their answer in a clearly laid out manner gained higher marks. Candidates who gave examples of gardens displaying particular garden styles were rewarded, as were those who mentioned materials and plant types one would associate to a garden style.

- b) Explain how the relationship between the house and garden is used in garden design.

Candidates who explored proportion and scale, unity and harmony, historical significance & style gained the highest marks.

- Q2** a) Describe **TWO** methods of carrying out a site survey, including the use of equipment and recording techniques.
The definition of “site survey” caused difficulties:

Some read the question as asking for methods of surveying a site i.e. accurately recording the location of garden features. Others read it as being a site investigation i.e. what is in the site.
Some candidates gave examples for both of the above.

- b) Explain how variations in level may be measured and recorded.

Candidates who explored GPS, total stations, automatic levels, laser levels. methods of recording: height of collimation, rise and fall, and how levels are recorded on maps and plans: contours, spot heights, level sections gained the highest marks.

Section C – Plant Selection, Establishment & Maintenance

- Q3** a) Describe, in chronological order, the annual maintenance necessary to maintain an established rock garden to a high standard.

Candidates gaining highest marks were those who related different aspects of cultivation to the four season maintenance calendar as required by the answer. Statements of various activities without details of timing received fewer marks.

In part a) the examiner was looking for expansion/description in a number of the following areas:

Spring – mulch (grit), plant /transplant, feed (if necessary), divide.

Summer – weed (all year round), water, trim, pest and disease treatments, dead head.

Autumn – Mulch, trim back.

Winter – Clear fallen leaves, offer extra winter protection.

- b) State and explain the reasons for selecting **TWO** suitable **NAMED** plants for **EACH** of the following situations:

- v) scree bed;
- vi) rock garden;
- vii) alpine meadow;
- viii) alpine trough.

Marks were awarded in part b) for appropriate examples, together with clear and accurate explanations of the reasons for their selection.

The examiner was looking for two appropriately named examples and reasons were required in four alpine situations, for example, Rock garden – *Dianthus alpinus*, pink flowers, June/August, preference for alkaline soils.

Q4

- a) State the factors that may affect water clarity in a garden pond.

Amongst the factors which could have been chosen were – Depth, surface area, proportion of surface area covered, stocking rate (fish), types/number of plants, aspect/location, falling leaves/excessive organic matter, pumps/filters, use of chemicals.

- b) Describe the selection and quality criteria for aquatic plants for a garden pond.

The selection/quality criteria being looked for were – Location in pond (deep water, marginal, oxygenator, floating)
Vigour (avoid aggressive types in small ponds)
Pest, disease, weed free (especially duckweed)
Healthy, well balanced leaves, shoots, roots.
Hardiness
Native/non native.

- c) Describe the maintenance of **FOUR** different **NAMED** aquatic plants over a growing season.

Four aquatic plants were to be named, and their seasonal maintenance described. Two examples are:

Nymphaea alba, divide in spring if necessary, feed, dead head if practical, remove / cut back excessive dying/decaying foliage at the end of the growing season.

Elodea Canadensis, thin out/remove carefully through the growing season as necessary.

General Comments:

Candidates were well aware of the factors affecting water clarity, along with selection/quality criteria for aquatic plants. Frequently the weakest selection on this question was part c. Instead of giving maintenance detail often candidates chose to describe the ornamental / aesthetic value of their particular named plants which was not asked for.

Section D – Ornamental Landscape Construction

- Q5** a) Explain how top soil can be efficiently stored during the construction stage of a major development.

Marks were awarded for clear explanations of the processes, and reasons for, the following operations, using examples where appropriate:

- removal of existing vegetation
- correct machine(s) for job
- segregation from subsoil
- appropriate location of bunds
- profiles of storage bunds to maintain stability
- dimensions of storage bunds
- Possible measures to maintain structure and fertility; prevention of compaction, water logging, excessive drying, erosion, contamination, leaching
- length of storage times
- method(s) of weed control during storage
- possibility of green manure / temporary cropping and its maintenance
- health and safety implications.

Few candidates answered this question in adequate detail. Candidates gaining the highest marks were those who stated that topsoil should be stored in bunds and explained how this would be done to maintain quality, both during the initial removal and transportation, and during the storage phase. They also discussed the type of machinery required and the health and safety implications. Those relating their answers to the requirement in the question that this was a 'major development' received the highest marks.

- b) Describe how soil structure can be improved when construction is complete.

This part of the question required a description of cultivation methods. Marks were awarded for appropriate explanations of primary and secondary cultivation techniques to include:

- Appropriate tools and equipment
- Optimum conditions
- Amelioration, addition of organic matter, examples – inorganic matter and examples, lime

Most candidates stated the requirements of cultivation including the addition of organic matter, however few expanded on this to describe the tools and equipment and the methods. Highest marks were awarded to those answers which gave full and accurate details of soil conditions, tilth and depth requirements for different plant types; details of sub-soiling; and to those which demonstrated a clear understanding of the differences between soil structure and soil texture

- c) Evaluate **FOUR** distinct methods of improving drainage of the site prior to planting.

Almost all candidates were able to identify four methods, those most stated were variations on:

Ditches
French drains
Mole drains
Piped systems
Sub soiling and cultivation.

The question required an evaluation of each, and the better answers listed a description and the advantages and disadvantages of each system. It did appear however that the candidates' knowledge was based on theoretical detail rather than evidence of practical experience. It was evident in some of the answers that this knowledge was often related to sports turf drainage. Several candidates suggested verti-drains and sand slitting, which would not be carried out prior to planting, as the question asked. Some answers suggested major reconstruction to change terracing, slopes and contours which should have been addressed before the pre-planting stage.

- Q6** a) List and describe **FIVE** distinct types of fencing and name an appropriate garden situation for **EACH**.

Candidates who answered this question were able to name five types of fencing, most of them included:

- Closeboarded
- Panel
- Post and rail
- Strained wire
- Chainlink
- Palisade/picket.

Marks were awarded for descriptions and these were often illustrated with diagrams, but they were often tiny and not always clear. There was also some confusion between some types and this was apparent in the descriptions. Particularly, the differences between chain link and post and chain, ranch and post and rail, closeboarded fencing and closeboarded panels was not clear in some instances. Many wrongly included wattle or osier hurdles as a type of panel fencing. Worryingly some candidates thought that hedges and walls were types of fences. No answer included reference to the British Standard terminology for fences.

The garden uses and situations stated were adequate in most cases.

- b) Give details of the materials and method of construction of a fence for **ONE** of the types listed in a), using clearly labelled diagrams.

This was divided into two parts – in the first part fence type and materials with their specification and dimensions were required.

Marks were awarded for inclusion of:

- named fence type
- overall dimensions (height, distance between posts etc)
- type of posts
- dimensions of posts
- type and number of rails/cladding
- dimensions of rails/cladding
- finish/treatment of materials
- types of fixings

The second part required a description of the procedures for erecting the named fence to include:

- locating and marking boundary/fence line
- locating underground services and obstructions
- post insertion method
- depth of insertion and excavation dimensions
- concrete mix or other backfill specification
- method of checking upright
- temporary strutting if required
- correct sequence - second and subsequent posts, order of attachment of wires, cladding etc
- gravel boards etc if appropriate
- method of fixing rails, straining wires etc
- method of paling/panel attachment as appropriate
- addition of cappings and post caps
- health and safety considerations

Both parts could have been described and explained in diagrammatic form, which was a requirement of the question. Clear and accurately labelled diagrams showing dimensions received highest marks. Complete answers included reference to the health and safety aspects related to the fence construction, especially with respect to locating underground services prior to excavation. Other aspects of the construction process for which marks were awarded included: the depths and dimensions of the posts and insertion methods below ground and a description of the sequence of erection.

© These questions are the property of the Royal Horticultural Society.
They may not be reproduced or sold.

The Royal Horticultural Society, Wisley, Woking, Surrey. GU23 6QB