



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

10:00am Wednesday 7th July 2010

MODULE I

**Restoring Established Ornamental Gardens
Planning Layout & Construction of Ornamental Gardens**

Section A – Short Answer Questions

Candidate Number:.....

Candidate Name:.....

Centre Number/Name:.....

IMPORTANT – Please read carefully before commencing.

- i) The duration of the papers in Module I 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.

Please turn over/.....

ANSWER ALL QUESTIONS

MARKS

Q1 State **FOUR** functions of a pergola in a garden.

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Q2 Describe how topsoil should be stored during site redevelopment.

2

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Q3 State **TWO** design considerations to be reviewed when drafting the specification for decking in a domestic garden.

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Q4 Describe the procedure for marking out the position of a stone statue from an established base line.

2

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Please see over/.....

ANSWER ALL QUESTIONS

MARKS

Q5 State **ONE** advantage and **ONE** limitation of the use of the following materials in the garden:

- i) timber;
- ii) pre-cast concrete slab.

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Q6 State the depth and width of foundations appropriate for a single-brick garden wall, 1 metre high, on a stable soil.

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Q7 State the criteria used in the selection of an appropriate drainage system for a grassed children's play area.

2

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Please turn over/.....

ANSWER ALL QUESTIONS

MARKS

- Q8** State **FOUR** factors to be considered when planning the schedule for a programme of garden restoration.

2

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- Q9** State **FOUR** features that should be reviewed when assessing the condition of a mature garden hedge to be retained.

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- Q10** Explain the need for expert help at an early stage to assess the condition of a summer house.

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MODULE I

**Restoring Established Ornamental Gardens
Planning Layout & Construction of Ornamental Gardens**

Sections B & C - Structured Questions

IMPORTANT – Please read carefully before commencing.

- i) The duration of the papers in Module I is **2 hours**.
- ii) Answer **ONE** question from Section **B** and **TWO** questions from Section **C**.
- 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.

Please turn over/.....

Section B – Restoring Established Ornamental Gardens

Answer **ONE** question only from this section

MARKS

- Q11** a) State what is meant by **EACH** of the following terms:
- i) 'heritage garden'; **2**
 - ii) 'listed garden'. **2**
- b) Identify **FOUR** national UK organisations involved in the development of heritage and listed gardens. **4**
- c) Outline the work of the organisations given in b) for:
- i) research into garden history;
 - ii) undertaking heritage garden restoration. **12**
-
- Q12** a) Identify **FIVE** physical problems that can be encountered when surveying an established garden. **5**
- b) Describe how **THREE** of the problems identified in a), may be overcome. **3**
- c) Name and describe **ONE** significant site factor identified in a), that is likely to create an impact on the existing site and proposed developments. **12**

Please see over/.....

Section C – Planning Layout & Construction of Ornamental Gardens

Answer TWO questions from this section

		MARKS
Q13	a) List the factors that should be considered when selecting a natural water supply for use in a garden.	4
	b) Describe how a natural water supply can be incorporated in the design of a garden.	8
	c) Explain the safeguards necessary when using a natural water supply in the garden.	8
Q14	a) Describe FIVE NAMED surface materials suitable for a garden path.	10
	b) Outline the procedure for laying a NAMED surface material for a garden path.	5
	c) State TWO edging materials for garden paths.	2
	d) Describe how ONE edging material identified in c), should be installed.	3
Q15	a) Describe FIVE hard surface materials used in gardens.	10
	b) Review the criteria used in the selection of surface materials for a children's play area.	4
	c) State the advantage of SIX NAMED hard landscape features in the garden.	6

Please turn over/.....

**Section C – Planning Layout & Construction of Ornamental
Gardens**

Answer TWO questions from this section

	MARKS
Q16 a) Explain how the detail required in a plan drawing will determine the selection of the scale to be used.	2
b) Describe, with the aid of diagrams, SIX graphic symbols associated with a plan drawing.	6
c) Explain how EACH of the following design styles may be used to enhance the garden landscape:	
i) formal;	4
ii) traditional;	4
iii) contemporary.	4

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MODULE I

Restoring Established Ornamental Gardens Planning Layout & Construction of Ornamental Gardens

Candidates Registered	137		Total Candidates Passed	100	86.96%
Candidates Entered	115	83.94%	Passed with Commendation	17	14.78%
Candidates Absent	11	8.03%	Passed	83	72.17%
Candidates Deferred	9	6.57%	Failed	15	13.04%
Candidates Withdrawn	2	1.46%			

Section A – Short Answer Questions

Q1 State **FOUR** functions of a pergola in a garden.

The intention of the question was to elicit ideas about the function of features that could be included in a design, rather than a superficial knowledge of what is available. This was well answered with points such as 'to give height, to screen or divide a garden, to provide shade, to grow climbers, to accentuate a focal point.

Q2 Describe how topsoil should be stored during site redevelopment.

This question was intended for the candidate to show an understanding of the value and importance of topsoil. It was well answered with marks for; keeping topsoil separate from subsoil, away from risk of contamination, compaction; covering it to prevent weed infestation and erosion; placement of the bund, not under drip line of trees, on a level porous surface, etc.

Q3 State **TWO** design considerations to be reviewed when drafting the specification for decking in a domestic garden.

This question aimed to get down to the detail of specifying exactly what design choices could be made in the specification of decking. Marks were awarded for points such as: specification of material, hard or soft wood, recycled products etc; specification for width and depth of boards; specification of surface, grooved, ribbed or plain, choice of finish, colour, stain, oil etc. Many candidates lost marks by mentioning functions of decking.

Q4 Describe the procedure for marking out the position of a stone statue from an established base line.

To answer this question correctly a candidate would have to have a good practical knowledge of the procedure and it was this that the question hoped to test. Good use of English wasn't required for this question though it helps! Marks were awarded for clear correct diagrams which are often helpful when describing a procedure that can be easier to do than put in to words. However there were some good descriptions of triangulation. The use of offsets from the base line was accepted if the distance to the position of the statue was less than 5m, if not 1 mk was given. Many candidates, erroneously, gave the procedure for recording the position of the statue in a field book and putting it on to a drawing rather than marking out.

Q5 State **ONE** advantage and **ONE** limitation of the use of the following materials in the garden:

- i) timber;
- ii) pre-cast concrete slab.

This question expected candidates to show an understanding of the choices of materials that could be used in hard landscaping. Marks were given for timber being sustainable, renewable, relatively easy to work etc and not for subjective aesthetical judgements such as 'looks attractive' although 'suitable for cottage or woodland garden' would gain a mark as the idea is put into context. The pre-cast concrete slab was described as durable, available in many colours and forms etc. Marks were not awarded for 'cheap' or 'expensive' unless this was related to a reasonable comparison i.e. 'pre-cast concrete slab cheaper than real stone paving'.

Q6 State the depth and width of foundations appropriate for a single-brick garden wall, 1 metre high, on a stable soil.

This question tested a knowledge of practical wall building or at the very least an understanding of the function of foundations. It also called for an understanding of the term 'single brick wall'. Marks were given for depth of 150mm and width of 450mm. Where candidates gave 'twice width of wall' they were given ½ mk.

Q7 State the criteria used in the selection of an appropriate drainage system for a grassed children's play area.

This question hoped to gain answers that would show an understanding of drainage fundamentals with some relationship to health and safety consideration for children and/or the fact the drainage had to be efficient. Marks for considering soil type and texture, gradient of site etc were given, also for descriptions of workable schemes e.g. a herringbone system.

Q8 State **FOUR** factors to be considered when planning the schedule for a programme of garden restoration.

The detail of timings and factors that could affect timings had to be considered for this question rather than the work to be done. Points such as season, closure to public, availability of labour, availability of materials and staggering of funds were all valid

- Q9** State **FOUR** features that should be reviewed when assessing the condition of a mature garden hedge to be retained.

Candidates gave good answers showing the practical issues surrounding a mature hedge; species, vigour, pests and diseases, condition etc gained marks. Consideration of the pros and cons of keeping the hedge did not gain marks as it was the condition of the hedge that was being assessed.

- Q10** Explain the need for expert help at an early stage to assess the condition of a summer house.

An understanding of the role of experts was needed to answer this question. The main points were health and safety issues, identification of rots, advice re repair, craftsmanship, implications of working with a listed building and these got good marks. A list of structural flaws the building could have limited the candidates' ability to gain full marks.

Sections B & C – Structured Questions

Section B – Restoring Established Ornamental Gardens

- Q11** a) State what is meant by **EACH** of the following terms:
- i) 'heritage garden';
 - ii) 'listed garden'.
- b) Identify **FOUR** national UK organisations involved in the development of heritage and listed gardens.
- c) Outline the work of the organisations given in b) for:
- i) research into garden history;
 - ii) undertaking heritage garden restoration.

The first part of the question was well answered, however fewer candidates understood the registration system for historic parks and gardens and the body which is responsible for this listing. The answers are as follows:

- i) A garden or landscape or both of historical design or plant collection of importance, may also be linked to a famous personage or significant event. Modern heritage gardens.
- ii) English Heritage register of Historic Parks and Gardens of special historic interest (1983). May also contain listed buildings and structures

For part b possible answers were:

English Heritage

National Trust

County Gardens Trusts

Royal Horticultural Society

Historic Houses Association

CADW in Wales

The organisations listed above were most frequently mentioned by candidates, the RHS has a role in furthering a knowledge of gardening, but not specifically for garden conservation and restoration, only for the gardens that it owns.

English Nature issues grants and conservation protection for notable habitats for flora and fauna.

Heritage Lottery Fund was not mentioned at all.

DEFRA through grants mainly in the form of land use grants.

The answers to the final section were sometimes not specific to the role of each organisation.

English Heritage, keeper of historic records, responsible for grants and advice, listing and registering historic houses and landscapes, listing includes grade I, II and III

Owner of historic gardens including Osborne House, Darwin's House and Kenwood House.

Undertakes restoration and re creation projects such as Kenilworth Castle Elizabethan garden.

CADW similar work in Wales

National Trust is a charity who has the inalienable right to hold land under the National trust Act 1906. Landscape and building conservation body, it maintains and conserves a range of buildings and landscapes, it also carries out restoration projects. It however does not issue grants, it is the recipient of grants from other organisations. It holds considerable historic records on the properties it owns. It employs a number of specialist advisers on advise on maintenance and conservation projects

Heritage Lottery Fund part of National lottery which raises money for good causes. Fund specifically for projects such as conservation and restoration. Often grants awarded involve 'match' funding.

DEFRA awards grants for projects with a high conservation value such as conservation grazing by animals or construction of dry stone walls.

Historic Houses Association represents 1500 privately owned houses and gardens. Promotion for visitors, conservation and restoration projects and education projects such as the careership scheme which also involves the National Trust.

County Gardens Trusts are involved in surveying historic gardens and contributing to a national register of such sites. Issue small grants for both conservation work and education. Promote historic gardens by local events including plant sales.

- Q12** a) Identify **FIVE** physical problems that can be encountered when surveying an established garden.
- b) Describe how **THREE** of the problems identified in a), may be overcome.
- c) Name and describe **ONE** significant site factor identified in a), that is likely to create an impact on the existing site and proposed developments.

Most candidates achieved full marks for the first part of the question. A list of the possible answers are below:

- over-grown trees and shrubs,
- structures in disrepair,
- over-grown boundary hedges,
- beds and borders,
- obscured paths,
- overgrown and misshapen grass areas,
- poor drainage,
- pests and diseases,
- slopes,
- exposure,
- underground and over ground services.

Again the second part of the question was answered well, typical samples of answers are given below:

- trees and shrubs cut back or removed; structures photographed and removed or necessary repairs made,
- hedges removed and replanted or pruned back heavily,
- beds need either to be removed or reshaped with replacement or propagation of the plants,
- paths may reshaped resurfaced or re routed,
- lawns receive restorative maintenance, drainage, grass reshaped.

Possible examples for the third section of the question are:

- overall significance of the feature in both historic and conservation value,
- conservation area and TPO, SSSI etc,
- rarity and significance of plant species,
- access and circulation,
- views and vistas,
- health and Safety issues,
- cost and complexity of restoration.

Section C – Planning Layout & Construction of Ornamental Gardens

- Q13**
- a) List the factors that should be considered when selecting a natural water supply for use in a garden.
 - b) Describe how a natural water supply can be incorporated in the design of a garden.
 - c) Explain the safeguards necessary when using a natural water supply in the garden.

The aim of this question is to show that the candidate is able to identify, describe and evaluate the factors which need to be considered in the safe incorporation of an existing natural water supply into a garden layout and to review the range of features that might be included.

In most cases this question was answered in relation to the installation and future maintenance of an ornamental feature but some candidates referred to harvesting and storage of natural water for irrigation purposes.

- a)
 - although only a list was asked for it was necessary in most cases to expand this to make the meaning clear, good answers were awarded marks for the inclusion of:
 - legal requirements in obtaining permissions for extraction/change of water courses etc,
 - potential seasonal variations,
 - water quality suitability for proposed use, possibility of pH and oxygen content affected by upstream activities,
 - human safety (drowning and disease),
 - changes which could affect the level of the water table both inside and outside the property,
 - changes in level and drainage patterns causing problems to roots of mature trees,
 - problems with the introduction of invasive and non-native species of both flora and fauna,
 - implications of changing the local and wider ecology and natural habitats,
 - possibility of introducing pollution through run off,
 - the introduction of pests and diseases,
 - the availability and possibility of construction techniques using appropriate materials such as puddled clay, local stone etc,
 - proximity to habitable buildings causing damp, erosion to foundations.

The second part of the question required a description of how various features such as lakes/ponds/streams/cascades/waterfalls/fountains/bog gardens or combinations of these could be incorporated into a design *using a natural water supply*. Although most candidates were able to list many of the above features, both formal or informal, most answers lacked detailed descriptions as to how they could be incorporated in a design and much of it could have been achieved by the use of artificially introduced water as well as natural water as specifically asked for in the question. Very few answers described how the natural topography of the land could be utilised to introduce movement and sound without the use of a pump or how the contours could be utilised or modified to create a natural feature. The use of dams and controllable weirs and sluices was rarely mentioned. Most answers suggested appropriate planting to create a natural effect not necessarily specific to natural water, but there was very little included on the details of possible construction materials and techniques appropriate to the feature in relation to natural water. The candidate should have referred to some of the factors listed in part a), such as seasonal variations in level, to describe how these may be allowed for in the design and construction.

The safeguards asked for in part c) should refer to both the safety of people who might visit or use the water, and to the natural environment, both locally and more distant. Marks were awarded for:

- safety from drowning, areas suitably fenced and signed
- prevention of pollution from the use of fertilisers, pesticides and herbicides to include run off from surrounding land,
- regular monitoring of water quality – (including implications for downstream properties),
- methods to minimise introduction of non-native species,
- flooding – incorporation of adequate bypasses and overflows,
- ways of dealing with or preventing slippery paths/decking,
- prevention of infiltration into mains water supplies and contamination from/to foul water systems,
- control of waterborne diseases transmissible to humans such as legionnaires disease(spray), Weil's disease (rats) and others,
- safety of electricity if an electric pump is going to be incorporated, either for a decorative feature or to pump irrigation water.

- Q14**
- a) Describe **FIVE NAMED** surface materials suitable for a garden path.
 - b) Outline the procedure for laying a **NAMED** surface material for a garden path.
 - c) State **TWO** edging materials for garden paths.
 - d) Describe how **ONE** edging material identified in c), should be installed.

The aim of this question is to show that the candidate has an understanding of the physical, aesthetic and practical properties of a range of materials used in the construction of the surface and the edging of a garden path and to be able to specify the construction details of the path

All candidates who answered this question were able to name five surface materials but higher marks were awarded to those who were then able to provide a good description as asked for in the question. Without this description it was often not possible to ascertain exactly what material was being suggested. Particularly “gravel” can refer to several different types and mixtures of aggregates. Likewise “pavers” and “paviours” need to be qualified as to materials, colours, textures, sizes etc., and possibly many materials have regional variations as well. Block paving, crazy paving, (and others) are generic types of surfaces and not materials themselves. Candidates should avoid the use of terms such as “available in many sizes/colours/textures”, this is what is being asked for in the description. Likewise “*relatively* cheap/easy to lay, etc” means nothing unless compared with alternatives, and doesn’t really describe the material itself.

In part b) marks were awarded for providing a brief explanation of all the stages of laying a garden path including specifications of materials, dimensions and methods. In general the processes were well understood but often the specifications, especially in the case of the foundations, were excessive for a garden path. The construction details of the laying and methods of the bedding and filling the joints of flexible hard surfaces such as block paving was sometimes confused with rigid surfaces such as pre-cast concrete slabs. There was also some confusion as to the purpose of a geotextile membrane in the context of hard surfaces, this would not be functional as a weed suppressant under an area of in-situ concrete or block paving. The thickness and purpose of a blinding layer was sometimes misunderstood.

Two edging materials were stated by all candidates who attempted this question but full marks were awarded to those candidates who made it clear as to what was meant. For instance “wood” or “concrete” alone was not sufficient.

The final part of the question was much better answered by those candidates who included a clear diagram. Specifications of materials, dimensions and methods of the installation were required. Particularly in this case an explanation of how the edging was constructed to fulfil its function of retaining the path (and bed/lawn) and the prevention of lateral spread needed to be included. Methods of obtaining correct line and level were omitted in almost all cases, simply stating “using a spirit level” is insufficient as most path edgings would not be laid to an exact level. In many cases the foundation requirements were not clearly understood.

- Q15** a) Describe **FIVE** hard surface materials used in gardens.
- b) Review the criteria used in the selection of surface materials for a children's play area.
- c) State the advantage of **SIX NAMED** hard landscape features in the garden.

The aim of this question is to show that the candidate has an understanding of the physical, aesthetic and practical properties of a range of materials used in the construction of hard surfaces in a garden and in particular those suitable for a children's play area. The aim of part c) is show that the candidate is able to recognise the positive attributes of a range of garden features.

All candidates who answered this question were able to name five surface materials but higher marks were awarded to those who went on to provide a good description as asked for in the question. Without this description it was often not possible to ascertain exactly what material was being suggested. Particularly "gravel" can refer to several different types and mixtures of aggregates. Likewise "pavers" and "paviours" need to be qualified as to materials, colours, textures, sizes etc. Cobbles and setts have differing definitions and possibly many materials have regional variations as well. Block paving, crazy paving, decking (and others) are generic types of surfaces and not materials themselves. Candidates should avoid the use of terms such as "available in many sizes/colours/textures" – this is what is being asked for in the description. Likewise "*relatively* cheap/easy to lay, etc" means nothing unless compared with alternatives, and doesn't really describe the material itself.

Good answers to part b gained marks for including details of the qualities of appropriate finishes which make them suitable as a play surface. An explanation of critical fall heights in relation to proposed play equipment was explained by most candidates. Other considerations included:

- impact and abrasive qualities of the surface,
- durability and wear resistance appropriate to amount and type of use,
- cleanliness,
- appropriateness for wheeled use (prams, buggies, bicycles and wheelchairs),
- maintenance requirements,
- need for/type of retention (edging - particularly with granular materials)
- transition between surfaces,
- longevity (need for replacement of loose materials)
- aesthetics,
- cost and ease of installation.

Although the inclusion of examples of appropriate materials under the above criteria enhanced the answer, many candidates simply listed different materials with brief descriptions which didn't address the question of selection.

In part c) many different features were quoted and all candidates were able to give positive reasons for including them in a garden. Sometimes the features were very similar e.g. "patio" and "terrace" or "arbour" and "pergola" and needed to be differentiated in the advantage(s) stated to gain full marks.

Some candidates quoted materials such as bricks, or types of surfaces such as block paving which are not features themselves.

- Q16**
- a) Explain how the detail required in a plan drawing will determine the selection of the scale to be used.
 - b) Describe, with the aid of diagrams, **SIX** graphic symbols associated with a plan drawing.
 - c) Explain how **EACH** of the following design styles may be used to enhance the garden landscape:
 - i) formal;
 - ii) traditional;
 - iii) contemporary.

The aim of this question is to show that the candidate has an understanding of the standards of scale plan drawing appropriate to landscape and garden planning. The aim of part c) is for the candidate to show an understanding of the application of a range of garden design styles.

Answers to part a) needed to include examples of types of drawings with corresponding appropriate standard scales, the type of detail required for each and an explanation as to how the scale will allow different levels of the required detail. Examples of plans could include location plans, site base plans, contour plans, utility plans, presentation plans, setting out plans, planting plans, construction detail plans, drainage plans, irrigation plans, lighting plans, etc.

Most candidates were able to produce six symbols in their answers to the second part of the question but it was not always clear as to how they were arrived at. The point of a symbol is to graphically present a feature in a drawing to make it clear what it represents without further labelling, this was not always the case. Few candidates reproduced British Standard drawing office symbols. The question clearly asks for *plan* symbols but many candidates produced symbols or hatching used in section or elevation drawings. The question asks for a description but some candidate produced symbols which were similar to others, particularly those representing trees and shrubs, with little explanation as to why and how they had been devised as such and how they differed.

Most candidates had an understanding of three design styles and could provide descriptions of their main characteristics, often using examples, but many could not then go on to describe how they could be used to enhance the landscape.

Good answers included explanations of how design principles may be identified and applied for each style to include: unity with existing architecture and building materials, unity with external views, unity with local ecology/vegetation, balance/symmetry/asymmetry, contrast, rhythm, scale/proportion, focal point, colour etc. This could then have been expanded to include explanations of the functional aspect, mood and atmosphere, trends and fashions, socio-political and economic factors, lifestyle, etc and how they may (or may not) be appropriate to these styles in a modern setting and how or if they can be manipulated to enhance the garden landscape. Examples of hard landscape materials and features, planting and soft landscaping and typical ornaments for each style helped to illustrate the above points as necessary. Although examples of gardens were given, answers should not just have been descriptions of gardens in these styles.

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