



**R3111**

**UNDERSTANDING GARDEN SURVEY TECHNIQUES  
AND DESIGN PRINCIPLES**

**Level 3**

**Friday 18 February 2011**

**13:30 – 14:30**

**Written Examination**

**Candidate Number:**.....

**Candidate Name:**.....

**Centre Number/Name:**.....

**IMPORTANT – Please read carefully before commencing:**

- i) The duration of this paper is **60 minutes**;
- ii) **ALL** questions should be attempted;
- iii) **EACH** question carries **10 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.

## ANSWER ALL QUESTONS

## MARKS

**Q1** a) Explain how **EACH** of the following affects the design of a garden:

- i) aspect;
- ii) views;
- iii) changes in level.

2  
2  
2

**Please see over/.....**

3

**Q2** a) Describe **SIX** features that would be found in a garden designed in the English landscape style.

6

**Please see over/.....**

- b) Name **TWO** designers who created gardens in the English landscape style with **ONE NAMED** example of the work of each.

4

**Please turn over/.....**

### Q3

Review the way in which existing site factors may influence planning and layout in a garden designed for disabled users.

10

**Please see over/.....**

## MARKS

**Please turn over/.....**

## Q4

Draw up **FIVE** questions that should be used as part of a questionnaire in the development of a client brief.

10

**Please see over/.....**



## MARKS

**Please turn over/.....**

**Q5**

Describe the linear surveying of a site using measuring tapes.

**10**

**Please see over/.....**

## MARKS

**Please turn over/.....**

**Q6**

Describe what is meant by **EACH** of the following terms in garden design:

- |      |                     |   |
|------|---------------------|---|
| i)   | balance;            | 2 |
| ii)  | focal point;        | 2 |
| iii) | borrowed landscape; | 2 |
| iv)  | texture;            | 2 |
| v)   | space.              | 2 |

**Please see over/.....**

**Please turn over/.....**

**Q7**

Describe the main characteristics of a garden in the Japanese style.

10

**Please see over/.....**

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RHS Charity Registration No: 222879/SC038262**



**RHS LEVEL 3 CERTIFICATE IN THE PRINCIPLES OF GARDEN  
PLANNING, CONSTRUCTION AND PLANTING  
WRITTEN EXAMINATION**

**13:30pm Friday 18<sup>th</sup> February 2011**

**R3111**

**UNDERSTANDING GARDEN SURVEY TECHNIQUES  
AND DESIGN PRINCIPLES**

<b>Candidates Registered</b>	<b>46</b>		<b>Total Candidates Passed</b>	<b>30</b>	<b>76.92%</b>
Candidates Entered	39	84.78%	Passed with Commendation	4	10.26%
Candidates Absent	6	13.04%	Passed	26	66.67%
Candidates Deferred	0	-	Failed	9	23.08%
Candidates Withdrawn	1	2.17%			

- Q1** a) Explain how **EACH** of the following affects the design of a garden:
- i) aspect;
  - ii) views;
  - iii) changes in level.
- b) Describe **TWO** examples of how a design can enhance the attributes of a site.

The aim of this question was to assess the candidate's ability to appraise existing site factors and analyse the potential for a proposed design.

Aspect was best explained with the use of examples as to how this will affect comfort of users, the effects on plant growth and hence the positioning and orientation of proposed features, such as patios and utility areas. Mention should have been made of the possibilities of existing and required protection due to local microclimates, frost pockets etc, light and shade, seasonal and daily variations. Most answers included the plant requirements but many failed to explain the human comfort and practicality factors. Some answers confused aspect with orientation.

Almost all answers concentrated on enhancing good views looking out from a site, often quoting “borrowed landscapes”, usually by creating a frame or opening up a boundary. Many answers also included the possible necessity of screening bad views. However fewer candidates discussed views within the site, views from outside looking in, or views from inside the house from different rooms. Also little mention was made of a requirement for privacy and security/safety.

In considering changes in level, most answers identified a possible need for terracing and the provision of steps and ramps and the safety of these i.e. railings, non slip surface. Higher marks were awarded for those who identified other possibilities and many referred to the possibility of drainage problems or that attributes of the natural slope would allow water features to take advantage of gravity. Few answers included the problems of being overlooked and privacy from high level areas or the fact that terraces, almost by definition, provide a viewing platform. Also the fact that changes in level are a form of enclosure and add interest in a garden design by changing the feel of the space was largely ignored.

The second part of the question could be tackled from two ways, either by naming a design style or theme and then stating the type of attributes that a site may have which will contribute to that design or by quoting typical attributes of a site (i.e. trees – shade – north facing etc) and then suggesting a suitable design style (e.g. woodland garden) with examples of typical features/management techniques. Another example of the latter often used was a site which is badly drained incorporating a bog or water garden (with appropriate features, plants etc given). This was mostly answered well but higher marks were awarded to those who produced fuller descriptions and, particularly, examples of both hard and soft features.

- Q2**
- a) Describe **SIX** features that would be found in a garden designed in the English landscape style.
  - b) Name **TWO** designers who created gardens in the English landscape style with **ONE NAMED** example of the work of each.

The aim of this question was to assess the candidate’s knowledge of the development of historical garden design styles and their characteristics.

Part a) was answered well in most cases and candidates had a good appreciation of the Landscape style, although several confused this with the later Arts and Crafts style. Marks were awarded for appropriate features with variations of the following:

- water in the form of an informal lake often made by damming a valley, in middle distance etc.,
- folly, statues, ruins etc with allegorical meanings or as eye catcher on horizon,
- belts, clumps of trees usually native, arranged to create or screen views, as cover for game and future cash crop,
- cattle or deer in park – hunting, picturesque,
- uninterrupted views over parkland possibly created with haha (description), or lawn right up to house windows,

- serpentine driveways/paths creating ever changing views as moved along – often of house.

The question required a description and sometimes this was not sufficiently addressed to identify the features as being representative of the style.

Virtually all who answered part a) appropriately quoted Capability Brown and were able to name an example of his work. The second example was usually William Kent or Humphry Repton but their work was often not as familiar.

**Q3** Review the way in which existing site factors may influence planning and layout in a garden designed for disabled users.

The aim of this question was to assess the candidate's ability to appraise existing site factors and analyse the potential requirements for disabled users.

Answers required explanations and discussion, with examples, of how the following can be positive or negative factors which may need removal, adaptation or enhancement:

- general access implications,
- slopes – steps and ramps - railings, steepness, visibility etc.,
- surface finishes, use of wheel chairs, non slip surfaces,
- open water and unexpected drops (especially visually impaired),
- traffic movement – vehicles on driveways or public areas,
- sounds (water, wind) (especially hearing impaired),
- scents and smells of existing planting,
- seating and rest areas,
- electricity (i.e. to provide lighting).

This question asked for a review of the existing factors but many candidates suggested what could be incorporated into a garden for disabled use which were proposals for new features especially in the suggestions of building raised beds or the planting of sensory plants. Also few candidates discussed the nature of the disability; those with hearing impairments have differing problems to those in wheelchairs. Answers needed to give a clear rationale for inclusion seating alone may be just as desirable for able-bodied, especially elderly, garden users.

**Q4** Draw up **FIVE** questions that should be used as part of a questionnaire in the development of a client brief.

The aim of this question was to assess the candidate's appreciation of the client's requirements within the design process.

This was mostly answered well but basically, with variations on the following gaining marks:

- family members/garden users and their ages, hobbies etc/pets,
- proposed activities/entertaining, numbers etc.,
- favourite plants/planting effects,
- favourite hard landscape materials etc,
- time of day/year garden will be used for various activities,
- dislikes,
- budget.

Higher marks were awarded to those who actually wrote this in a format that could be used, or adapted as a questionnaire, which was what the question asked for but was rarely done. Often the "questions" were too similar to each other or lacked sufficient description; some answers had two or three variants on garden usage making up separate questions. Particularly "budget" needed more explanation as to design, build and future maintenance costs.

Some questions were too closed to be of much use, the answer yes or no from a client doesn't give a lot of ideas for development.

**Q5** Describe the linear surveying of a site using measuring tapes.

The aim of this question was to assess the candidate's knowledge of basic surveying techniques.

Marks were awarded for descriptions and expansions of the following, with variations allowed if the method described was feasible:

- appropriate equipment identified to include tapes, ranging poles, field book and pencil, compass,
- explanation of triangulation of the site, setting out of stations with explanation of criteria for positioning and numbering stations/lines and inclusion of check lines,
- explanation of baselines, offsets and tie lines and method(s) employed to take their measurements,
- method of filling out field book (with diagram).

Virtually all candidates had an appreciation of the concepts of baselines, triangulation and offsets. However, only a few were able to describe the basic methods for carrying out a recognised linear (chain) survey, although most methods submitted would probably work for the size and nature of sites that were suggested. Especially lacking was the way that the data is recorded, with many missing out this aspect altogether. Methods submitted often relied on the site and house being square and on the use of only one baseline, often there was no recording of any check lines. Sometimes the process for taking levels and the drawing up of the survey were included which were not required.



**Q6** Describe what is meant by **EACH** of the following terms in garden design:

- i) balance;
- ii) focal point;
- iii) borrowed landscape;
- iv) texture;
- v) space.

The aim of this question was to assess the candidate's knowledge and understanding of basic design principles.

Few candidates could explain that balance is achieved by having equal visual weight on either side of an axis or line of vision. Although not usually explained as such, symmetrical balance was well understood and some good examples of mirror image designs were given. Asymmetrical balance was not so well described. Higher marks were awarded to those who could give appropriate examples of this.

Answers to the second part were usually brief with sometimes just an example of a focal point given, often with the fact that only one should be included. Very few answers explained how a focal point is at the end of an axis or line of vision but some quoted the fact that it may be positioned at the end of an avenue or in an arch, which are methods of accentuating it.

Many answers described how features, especially native trees, or surrounding hills etc, beyond the boundary could be given the impression that they belong within it. This was usually achieved by framing the view by making windows in hedges, for instance, and then repeating visual properties of the features within the garden. Very few candidates suggested the same could be done with architecture in urban situations or, surprisingly, that the classic church spire can be borrowed as a focal point.

Texture was not well understood as a design mechanism. Virtually all answers could quote examples of coarse and fine textured foliage that produce contrast, but very few could explain how this may be used in a design. Likewise very few candidates gave examples of hard landscape textures and the effects of light and reflection on them. Micro and macro textures were not mentioned.

Most answers stated that space is a void in that it is the opposite of mass and some gave examples of appropriate proportions. Few could then go on and explain the ways that space is created and the ways that this can be manipulated in design terms and to the moods that can be created by different shapes, heights and forms of enclosure.

**Q7** Describe the main characteristics of a garden in the Japanese style.

The aim of this question was to assess the candidate's knowledge of the development of historical and contemporary garden design styles and their characteristics.

It should be noted that the question asks for descriptions of Japanese garden style, many candidates described traditional authentic gardens in Japan. These often rely on strict religious and spiritual meanings which can rarely be achieved elsewhere where it is the visual aspect which is copied and adapted. Marks were awarded for inclusion of variations of the following: (These must have been fully explained to qualify them as typical Japanese features, i.e. "gravel" alone is insufficient).

- gravel that may be raked into patterns to imitate water in a miniature landscape, stepping stones,
- rocks, which may be included as islands in the miniature landscape above and are usually placed as in a traditional Japanese garden with symbolic meanings and not with the strata running horizontally as in an English rock garden,
- planting (maples, cherries/almonds, azaleas, bamboos etc ), again often to represent landscapes and may be bonsaied or cloud pruned - predominance of evergreens, spring blossom and autumn colour,
- tea houses or other pavilions (where traditional ceremonies may be held in Japan), description of style and materials – bamboo, painted screens, upturned eaves etc.,
- descriptions of stone lanterns, bridges, deer scarers etc and other ornamental features which traditionally may have been placed symbolically to guide travellers and ward off evil spirits.

**Q8** Explain the meaning of **EACH** of the following terms used in the recording of levels:

- i) optical collimation;
- ii) back sight;
- iii) fore sight;
- iv) reduced level;
- v) datum point.

The aim of this question was to assess the candidate's knowledge of basic level surveying techniques and terminology.

Optical collimation is the setting up of an optical (quickset) level so that the invisible level plane that passes through the centre horizontal hairline, as seen in the eyepiece, is dead level – this is then referred to as the height of instrument (HI). Higher marks were awarded to those who could state that it is this level that is used when the staff is read to ensure that all spot levels can be referenced to each other. This was not well understood generally with few candidates being able to submit a full answer but some were able to quote that this was the height of instrument.

The back sight is the first reading that is taken in any series of level surveying readings; it is taken on a known level which is usually the site datum point (TBM) for the first reading, but subsequently on the known level created by the previous fore sight. It is the first column on a booking sheet. Again this was not well answered. Although many candidates could state that it is the first reading on to a known level they could not explain this very well.

The fore sight is the last reading taken in the series of recordings as above, but this time on an unknown level, this might be the last in the survey, or it might be the last reading before the instrument is moved at a change point. It is the last column on a booking sheet. Again this was not well understood with better answers saying it is the last reading on to an unknown point before the instrument is moved, but with little further explanation.

Reduced level is the actual height of each spot level relative to a value allocated to the site datum. This is calculated by the rise and fall or height of collimation methods. Very few candidates could answer this part of the question adequately.

The datum point is a fixed level in a site from which all other levels are calculated in order to be relative to each other. It is usually positioned on the DPC level of the house or a door step or other fixed and permanent horizontal point. It is usually allocated a value of 100m or 50m to avoid going into minus values should the ground go below this level. Most candidates knew what the site datum point was but often related it to an Ordnance Bench Mark with a height value above sea level. This is not strictly wrong but extremely unusual except on very big sites.

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