



Including examiner comments



R3111

UNDERSTANDING GARDEN SURVEY TECHNIQUES & DESIGN PRINCIPLES

Level 3

**Thursday 8 February 2024
09:00 – 10:25**

Written Examination

Candidate Number:

Candidate Name:

Centre Name:

IMPORTANT – Please read carefully before commencing:

- i) The duration of this paper is **85** minutes;
- ii) **ALL** questions should be attempted;
- iii) **EACH** question carries **10 marks**;
- iv) Write your answers legibly in the spaces provided. It is **NOT** necessary that all lined space is used in answering the questions;
- v) Use **METRIC** measurements only;
- vi) Use black or blue ink only. Pencil can be used for drawing purposes only. Ensure that all diagrams are labelled accurately with the line touching the named object;
- vii) Where plant names are required, they should include genus, species and where appropriate, cultivar;
- viii) Where a question requires a specific number of answers; only the first answers given that meet the question requirement will be accepted, regardless of the number of answers offered;
- ix) Please note, when the word '**distinct**' is used within a question, it means that the items have different characteristics or features.

- b) List **FOUR** existing site features or characteristics that might need to be taken into account when designing the dining area, and for **EACH** of these, state how it could influence the design, by completing the table below.

6

	Existing feature or characteristic	Influence on design of dining area
1		
2		
3		
4		

Total Mark

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ii).....

Total Mark

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Q1	Question	MARKS
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	a)	Identify FOUR pieces of information that would be required to design an outdoor dining area as part of a client brief.	5
	b)	List FOUR existing site features or characteristics that might need to be taken into account when designing the dining area, and for EACH of these, state how it could influence the design.	5

a) Four pieces of information required to design an outdoor dining area as part of a client brief include 'the maximum number of people to be using it', 'the kind of furniture intended', 'whether integrated cooking facilities are required' and 'preferences for sun or shade'. It should be noted that answers pertaining to site appraisal such as 'whether the site is in sun or shade' were not accepted. Furthermore, other answers such as 'the intended size of the area' were not given full marks as some input from the designer, based on answers to other questions, would be required in order to answer that.

b) Existing site features or characteristics that might need to be taken into account when designing the dining area include 'large trees', 'existing utility services', 'sloping topography' and 'adjacent buildings'. The key requirement of the question however was to state how these could influence design. So, for example to state that 'large trees may cast shade which the client may, or may not, want'. Existing utility services may 'deem a potential location favourable for the dining area'. Sloping topography may 'require levelling' and adjacent buildings, which might overlook a potential site, 'may mean that screening is needed'. This part of the question was fairly straightforward for most candidates generally.

Q2	a)	Question State the characteristics of a south facing aspect that could affect plant choice.	4
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	b)	Describe THREE possible uses for which a south facing aspect within a garden would be beneficial.	6
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Q.2

It should be noted that for both parts of this question 'south facing aspect' could be interpreted as either a 'south facing slope' or a 'south facing wall' but candidates didn't need to specify which.

a) Four characteristics of a south facing aspect were required and they each needed to be characteristics that would affect plant selection. Possible answers include 'relatively high light intensity', 'relatively long duration of sunlight each day', 'increased evapotranspiration' and 'relatively long growing season due to warmer temperatures'.

b) Beneficial uses of a site with a south facing aspect within a garden include 'a greenhouse for crop production', 'a swimming pool' and 'growing fruits which need hot sunny conditions'. In each case, further description was necessary for full marks. E.g. for the greenhouse the site would 'ensure maximum sunlight and natural warming'. Likewise, a swimming pool would benefit from 'the maximised potential for natural heating of the water'. In the case of the fruits, suitable examples could have been given such as 'grapevines, figs and apricots'.

Q3		Question	
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	a)	Explain how a Conservation Area designation could influence the garden design process with respect to trees	4
	b)	State SIX ways in which existing tree roots on a site could influence the garden design process	6

Q.3

In explaining how a Conservation Area designation could influence the garden design process with respect to trees, candidates gaining full marks would have made clear and correct statements. These could have included the fact that if a designer ‘wishes to remove or carry out work on a tree of 75mm or more stem diameter’ then ‘6 weeks warning must be given to the local authority’. During this period, ‘the local authority will decide whether to place a Tree Protection Order (TPO) on the tree’ and if they do that the regulations around TPOs apply, i.e. that ‘the tree cannot be damaged/ worked on without permission’. Other relevant points such as the need for a replacement tree or a more general statement about the legal protection offered to trees by the Conservation Area designation will also have been accredited if full marks had not already been awarded. It should be noted that answers concerning modifications to a design as the result of having to retain a tree, e.g. building a tree house, were not accredited as they didn’t relate to the design process as such, but to the design itself.

b) Ways in which existing tree roots on a site could influence the garden design process, include matters concerning the protection of tree roots. E.g. identifying ‘the areas where the tree roots are likely to be’ and ‘from which trees the roots are extending’. This information would determine ‘whether planned work was likely to affect a tree within its Root Protection Area’. Legal matters could have been mentioned here concerning TPOs and tree ownership as well as the kinds of groundworks that are likely to damage a tree. Damage caused by tree roots could also have been considered, e.g. ‘potential damage to proposed structures through subsidence’ and ‘root competition with proposed plantings’. Mitigation measures against damage either to, or by, the tree roots would also have been accredited, e.g. ‘use of geocell systems’ or ‘root barriers’. As with part a) of the question, modifications to a design to accommodate a retained tree, were not accredited, unless in this case, these were directly related to protection of the roots, e.g. ‘decking using ground screws rather than a paved surface construction on foundations’. It should be noted that candidates who only responded in relation to tree roots which were visible above ground were not able to gain full marks on this question.

Q4	a)	Question Describe how to survey the dimensions of the detail of one side of a house.	MARKS 5
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	b)	Describe how extended measurements taken from one side of a house could be used to plot the position of a tree in relation to the house	5
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Q.4

a) This question was asking for a description of a method for measuring the dimensions of the detail of one side of a house. Candidates achieving full marks will have made five clear points about a method which would provide the necessary information to produce a plan drawing to scale of one side of a house. These points would have included the 'laying of a tape measure along the side of the house' to 'represent a line labelled e.g. A-B with A at one corner and B at the other'. 'Measurements then taken to key points e.g. start/end of windows and doors, drainpipes etc.'. These measurements should 'all be taken from point A, i.e. they are running measurements' and 'they are all recorded for the line A-B'. Additional points to make up full marks, if necessary, might have accounted for vertical measurements or the inclusion of, for example, a porch.

Several candidates proposed a baseline away from the house and taking offsets back to the house. Obviously, this is a very cumbersome method and full marks were not awarded.

b) There are two possible ways by which extended measurements taken from one side of a house could be used to plot the position of a tree. One of these involves extending a baseline from the house and plotting the tree by means of an offset. The other uses trilateration measurements taken from known points on the side of the house. Triangulation would also have been accepted as a variant of that. The offset method involves 'extending a measuring tape along one side of the house out into the garden'. This tape 'forms a baseline to which an offset measurement can be taken'. 'Using another tape, an offset is measured from the base of the tree back to the baseline, meeting the baseline at a right angle'. 'The measurement along the baseline at which it is met by the offset is recorded' as well as 'the length of the offset itself'.

Suitable statements making up a description of e.g. trilateration would have been 'the identification of two known points (e.g. A and B) on a side of the house' and 'the need for measuring between these points'. 'A measurement is then taken from A to the tree' and 'another measurement taken from B to the tree'. 'All three measurements are recorded'.

It can be noted that where a candidate accounted for the need to estimate the actual centre of the tree, then that was accredited if full marks had not already been achieved.

Q5	a)	Question For a measurement on the ground of 10 meters, state what the measurement on a scale drawing would be at each of the following scales i) 1 : 20	
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	ii) 1 : 50 iii) 1 : 100 iv) 1 : 500	4
b)	State a suitable scale to be used on a design plan for a small domestic garden and explain ONE reason for your choice	2
c)	Describe TWO types of scale drawing that could be produced from a level survey	4

Q.5

a) For a measurement on the ground of 10 metres, the measurement on a 1:20 scale drawing would be 50 cms. At scale 1:50 it would be 20 cms, at 1:100, 10 cms and 1 :500, 2 cms. Of course, the answers could have been expressed in millimetres but for marks to be awarded, it was essential that the correct unit of measurement was given.

b) Suitable scales to be used on a design plan for a small domestic garden are 1: 20, 1:50 or 1:100. For full marks a brief justification needed to be given. This might have related to e.g., the level of detail required (perhaps depending on the production of associated drawings) and the size of the paper to be used.

c) Two types of scale drawing that could be produced from a level survey are 'section drawing' and 'contour plan'. Adequate description for the section drawing would have been that it shows 'one vertical plane cut through the ground or structure'. For the contour plan it would have been sufficient to describe it as 'a plan showing the topography of a site by means of lines joining points which are at the same level'.

Q6	Question	MARKS
a)	Explain what is meant by the principle of balance in relation to garden design.	2
b)	Describe ONE example of how balance can be achieved in	4

		i) An informal design ii) A formal design	
	c)	Describe how balance should be considered at the site appraisal stage of the garden design process.	4

a) Two clear points were required from candidates in explaining the principle of balance in garden design. It has to do with 'the selection and placing of objects (or groups of objects) on each side of a visual axis' so that they 'have a similar visual weight (on each side of the axis) and the view appears visually balanced'. Several candidates referred to e.g., colour and scale/proportion in terms of balance. Clearly these are factors that contribute to visual 'weight' but unless this was clearly explained in relation to the visual axis, full marks would not have been awarded.

b) An example of how balance can be achieved in an informal garden would need to have been described with reference to asymmetrical balance around a visual axis. Different named items could appear to be in balance according to their relative distances from both the vantage point and the axis. E.g. a mature tree in a lawn, on the right of the view, balanced by a group of 3 medium sized shrubs, to the left of the view, closer to the viewer and the visual axis. For balance in a formal garden, there needed to be description of symmetrical arrangement around a central axis. E.g., two evergreen trees, tightly clipped to the same symmetrical size/ shape placed opposite each other either side of a central path and at equal distance from the path. In both examples, the arrangement of features, i.e. their distance, both along and from the axis, was important in providing a good quality response.

c) In describing ways in which consideration should be given to balance at the site appraisal stage of the design process, four valid points were required to achieve full marks. These might have referred to existing features and characteristics of a site that affect its visual balance before design has been implemented, or to whether the view is already balanced or not. Suitable points might have been 'trees and buildings, outside of the site, and outside of the designer's control, will affect the balance' or 'a TPO tree, which has to be retained, may affect the balance'. Other points might have been 'if there is already a visual balance from existing trees, the designer needs to maintain it' or 'an imbalance that the designer needs to address' or 'if the land slopes across the site, this might require creating a balance'. There are various points that could have been made including the fact that there might be different vantage points and visual axes within a site which are identified at site appraisal.

Q7		Question	MARKS
	a)	Explain ONE key characteristic of the Modernist garden design style	2
	b)		

	Describe the differences between Victorian and Modernist garden design styles, by using TWO examples for EACH of the following: i) hard landscaping features; ii) planting.	4 4
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a) Some examples of key characteristics of the Modernist garden design style include ‘Simplicity through restrained palettes’, ‘Avoidance of fussy ornamentation’ and ‘Garden as an outdoor living space’. There are several others of course but only one was required in this part of the question. Having stated a characteristic such as these, a further statement was required in order to provide a brief explanation of it. So, for example, simplicity through a restrained palette refers to the relatively limited range of plants and materials used in this style of garden, following the principle of ‘less is more’.

b) The descriptions for this part of the question had to include two examples from the Modernist style and two from the Victorian style in relation to both hard landscape and planting. For hard landscape, suitable examples from the Victorian style include ‘highly ornate stone balustrade walling’ and ‘ornate, classical figures for garden statuary’. In contrast, a Modernist garden may have had ‘Simple rendered walls’ and ‘abstract biomorphic sculptures’. It was important that the comparisons were like-for-like, e.g. as described here, relating to walling and statues/sculptures. For planting, suitable examples of the Victorian style would have been ‘formal seasonal bedding which is changed several times a year’ and ‘densely planted borders of evergreen shrubs’, compared with the Modernist style of ‘more permanent perennial single species ground cover’ and ‘tall shrubs/trees planted as individual specimens’. References to underlying trends, e.g. for ‘plant collecting’ in the Victorian period and for a ‘limited palette’ in modernism, often helped candidates in supporting or clarifying their answers.

Q8	Question	MARKS
a)	State SIX distinct ways in which environmental awareness influences design of domestic gardens in the UK today	6
b)		4

	Describe TWO potential limitations of horticultural shows with respect to promoting environmental awareness amongst domestic gardeners.	
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a) Ways in which environmental awareness influences design of domestic gardens in the UK today include how we make the most of gardens as wildlife habitat, e.g. 'avoiding destruction of existing habitat' and 'creation of new habitat'. Full marks would have been given for including examples e.g. 'retaining mature trees in a design' or 'creating wildflower meadows'. Other ways include avoiding waste by re-using or recycling materials, e.g. 'using reclaimed bricks for construction' or 'including a composting area for recycling green waste'. Greenhouse gases may also have been considered, e.g. 'using timber instead of concrete for construction' and 'planting trees for carbon sequestration'. There are numerous other possibilities around e.g. water management, air pollution control and food production. The examples given above are all sufficiently distinct but if for example, 'planting a native hedgerow' had been included in the same list as 'creating a wildflower meadow' only one of these would have been accredited unless it was made very clear that one was for habitat creation and the other for attracting pollinators. Likewise, 'avoiding cement due to its carbon footprint' and 'avoiding imported stone due to energy requirements in transportation' would not have been considered sufficiently distinct because essentially, they are both aimed at reducing carbon emissions.

b) Potential limitations of horticultural shows with respect to promoting environmental awareness amongst domestic gardeners include the observation that they 'encourage garden consumerism by promoting a wide range of products and lifestyle aspirations' and 'the poor example given by the shows themselves which could influence garden owners'. For full descriptions, specific examples could have been given, e.g. in relation to consumerism 'furnishing for the outdoor room' could have been mentioned. 'Short-term displays discarded at the end of show' could have been given as an example of the impact of the shows themselves.
