



**R3111**

**UNDERSTANDING GARDEN SURVEY TECHNIQUES & DESIGN PRINCIPLES**

**Level 3**

**Thursday 13 February 2020**

**09:30 – 10:55**

**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.

## ANSWER ALL QUESTIONS

		MARKS
Q1	a) Explain the purpose of each of the following:	
	i) conservation areas	2
	ii) Tree Preservation Orders (TPOs)	2
	i)..... ..... ..... ..... ..... ..... ..... ..... .....	
	ii)..... ..... ..... ..... ..... ..... ..... ..... ..... ..... ..... ..... ..... ..... .....	
	b) Describe how a conservation area designation could influence the garden design process with respect to trees.	3
	..... ..... ..... ..... ..... ..... ..... ..... ..... ..... ..... ..... ..... ..... .....	
Please see over/.....		

3

Total Mark
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**Please turn over/.....**

## Q2

Describe, using examples, **FIVE** distinct ways by which colour can contribute to unity in garden design.

**10**

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

**MARKS**

Total Mark

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

## MARKS

**Q3** a) Calculate the 'on drawing' measurement by completing the table below.

Scale	Measurement on ground	'On drawing' measurement
1:1	1m	1m
1:20	1m	
1:50	1m	
1:100	1m	
1:500	1m	

b) Define the following terms used in level surveying:

- i) change point
- ii) reduced level

i) .....

ii) .....

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

- c) Describe, using a simple diagram, how a section drawing can be produced from data gathered in a level survey.

**4**

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Total Mark
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**Please turn over/.....**

## Q4

Explain the environmental benefit of **EACH** of **FIVE** distinct features contained in gardens that demonstrate an awareness of environmental concerns.

10

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



Total Mark

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

10

- b) Describe **TWO** distinct features of medieval gardens that are not common today.

**4**

Total Mark

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

**Q6** a) Describe the significance of high altitude to the garden climate.

4

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

6

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

14

Total Mark

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

Describe **FIVE** distinct site factors that could cause different microclimates within a garden.

16



## MARKS

Total Mark

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## R3111

### UNDERSTANDING GARDEN SURVEY TECHNIQUES & DESIGN PRINCIPLES

#### Level 3

Thursday 13 February 2020

<b>Candidates Registered</b>	<b>149</b>		<b>Total Candidates Passed</b>	<b>124</b>	<b>94%</b>
Candidates Entered	132	89%	Passed with Commendation	63	48%
Candidates Absent/Withdrawn	15	10%	Passed	61	46%
Candidates Deferred	2	1%	Failed	8	6%

#### General Comments

The majority of candidates attempted and completed all the questions.

Where named plant examples are asked for, **full botanical names were required** to achieve full marks: genus, species and where appropriate variety, cultivar etc. needed to be written and spelt correctly. Where genus alone was given, all species in that genus need to show the characteristic asked for to gain any credit. **Common names were NOT accepted** and misspellings were penalised. Candidates needed to use unambiguous plant examples from sources such as the RHS Plant Finder and/or the RHS A-Z Encyclopaedia of Plants together with examples given in the syllabus and avoid obscure or difficult to verify plant examples which risked being not credited.

**Labels on diagrams needed to be carefully and correctly positioned** to avoid ambiguity, not left hanging in mid-air. They needed to actually touch the appropriate part of the diagram. Annotations on diagrams were accepted as an alternative to description in the text as long as these were clear and answered the question. No marks were awarded for artistic merit or for unlabelled diagrams

Where a number of answers were specified in the question, e.g. 'List **TWO** plant names' or 'Describe **TWO** functions' **only the FIRST TWO answers** in a list were marked.

Candidates should take account of the command statements in the question e.g. 'list', 'describe', 'explain', together with the mark allocation, to judge the depth of the answer required. Extra information, even if it is accurate, does not gain extra marks.

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|-----------|-----|--|----------|
| <b>Q1</b> | a)  | <i>Explain the purpose of each of the following:</i>   |          |
|           | i)  | <i>conservation areas</i>  | <b>2</b> |
|           | ii) | <i>Tree Preservation Orders (TPOs)</i>   | <b>2</b> |
|           | b)  | <i>Describe how a conservation area designation could influence the garden design process with respect to trees.</i> | <b>3</b> |
|           | c)  | <i>Describe how a TPO could influence the garden design process with respect to changing ground levels.</i>          | <b>3</b> |

**Q1** a) **i)** An ideal answer here would have referred to areas officially designated as 'conservation areas' in order to provide legal protection of their historic/architectural character. Although such an answer as this was anticipated by the examiner, a significant number of candidates interpreted the question more broadly to include land designations aimed at the protection of wildlife, habitats or rural landscapes. Credit was also given for these answers where official designation and its purpose were explicit.

**ii)** Answers awarded full marks would have included mention of legal protection for trees which bring particular benefit to the public amenity of a local area. Recognition of Tree Preservation Orders as an official status of selected trees and the purpose of protecting them would have been awarded some credit. Several candidates stated that TPOs are to protect native trees or the nature conservation value of trees, neither of which are correct.

- b) Given the broader interpretation of conservation areas described above, marking of this part of the question was sufficiently flexible to embrace a range of different contexts. Key requirements would have been that the designer was familiar with the restrictions imposed by the designating body and that if particular trees needed to be protected, then a design was developed in order to achieve that. Full marks will have been awarded where additionally, examples were given of design strategies for incorporating protected trees, and the possible requirements were identified for an ecological survey or approval for planting trees.

Those candidates answering this question with reference to the official designation of 'conservation areas' will have been awarded full marks for stating that notice of works intended on trees would need to be submitted to the local planning authority (LPA). That authority has 6 weeks to respond, after which if there is no response (or written approval), the work can go ahead. However, if the LPA disapproves of the work, they can place a TPO on the tree. Candidates responding with this scenario will also have been awarded marks where appropriate for design responses to the need for retaining trees, recognition of the delay incurred by the notification process and indeed additional details on conservation area legislation such as the minimum size requirements for trees in order for the law to apply.

- c) The intention with this part of the question was that candidates demonstrated understanding of how the garden design process would be affected in a garden containing a tree protected by a TPO, where there are possible plans to alter ground levels. Some candidates interpreted the context as being that the existing ground levels in the garden were variable, and how would that influence the design process. This interpretation was accepted as valid and marked accordingly although it made little difference to the nature of the answers which, in order to be relevant to the TPO, involved work to the roots (and possibly branches) of the tree. Key requirements for full marks would have been to demonstrate understanding that an offence would be committed if any living part of the protected tree was damaged and that this included works to the roots, i.e. within the root protection area (RPA). Plans would need to be developed therefore that avoided such damage or, if some work was deemed necessary on the roots or branches, then an application made to the LPA explaining the proposals and how impact on the tree was to be minimised. Work could not proceed until approved by the LPA. Additional marks would have been awarded for recognition of the delay incurred by this application process and for appropriate design responses to the need for protecting the tree, e.g. the use of no-dig methods for installing a path.

**Q2** Describe, using examples, **FIVE** distinct ways by which colour can contribute to unity in garden design.

**10**

**Q2** This question required candidates to explain the application of one principle (colour) in relation to another (unity).

The key requirement was that the description of in which colour could be used would clearly contribute to unity in design. Possible answers would have been to use 'harmonising colours', 'different tones of the same hue', 'matching colours between different features', 'colour in applying the principle of rhythm' and 'colour in applying the principle of balance'. For each use stated, further description would have been required in order to achieve full marks. E.g. for 'harmonising colours' an example could have been given of flower colours in the mauve/lilac/purple range. For 'colour in applying rhythm' an example could have been given of blocks of colour of the same hue placed at equal intervals along an axis. For 'colour in applying balance' description could have been given of the careful placement of hot colours to foreshorten distance or imply symmetry.

Several candidates were not able to describe five 'distinct' examples. This was particularly notable with 'matching colours between different features' where candidates described matching colours of both hard and soft landscape materials as well as colours in the house and garden and the environment outside. Each time matching colours featured in an answer for the second or third time, some marks would have been lost according the degree of similarity with previous answers.



- Q3** a) Calculate the 'on drawing' measurement by completing the table below.

<b>Scale</b>	<b>Measurement on ground</b>	<b>'On drawing' measurement</b>
<b>1:1</b>	<b>1m</b>	<b>1m</b>
<b>1:20</b>	<b>1m</b>	
<b>1:50</b>	<b>1m</b>	
<b>1:100</b>	<b>1m</b>	
<b>1:500</b>	<b>1m</b>	

1  
1  
1  
1

- b) Define the following terms used in level surveying:

- i) change point  
ii) reduced level

1  
1

- c) Describe, using a simple diagram, how a section drawing can be produced from data gathered in a level survey.

4

- Q3** a) This was straightforward question requiring simple answers that were either correct or not. The scales given (1:20, 1:50, 1:100 and 1:500) are all commonly used in landscape drawings and candidates were asked to demonstrate knowledge of how those scales translate actual measurements on the ground into dimensions on a drawing. The answers are as follows: At 1:20, 1 m = 5 cms; at 1:50, 1 m = 2cms; at 1:100, 1 m = 1 cm; at 1:500, 1 m = 2mm. It was of no consequence whether answers were expressed in metres, centimetres or millimetres. Many candidates gave incorrect answers.
- b) This part of the question was also straightforward and answered very well by most candidates. It would have been sufficient to state that the change point is 'the staff position where the levelling instrument is moved' and a reduced level is 'the level on the ground (relative to the datum) at a particular survey point'.
- c) This question was concerned with the use of data from a level survey for the production of a section drawing. Most candidates showed (by means of a diagram) what a section drawing looks like and described how a level survey is carried out. Fewer candidates however, could directly relate the survey method to the drawing by showing, on their diagram, the reduced levels and the horizontal distances between survey points. For full marks it would also have been necessary to show that that the drawing would need to be to scale or that it would need to be named (e.g. A-B).

**Q4** Explain the environmental benefit of **EACH** of **FIVE** distinct features contained in gardens that demonstrate an awareness of environmental concerns. **10**

**Q4** This question was answered very well by most candidates. Five distinct garden features that could demonstrate an awareness of environmental concerns are: 'a vegetable plot'; 'composting facilities'; 'wildlife pond'; 'water harvesting facilities'; 'wildflower meadow'. For each feature stated, full marks were awarded where its potential environmental credentials were made clear. E.g. 'a vegetable plot' provides the opportunity to adopt sustainable practices in food production (e.g. no-dig methods) and also supplies food for the household with zero transport requirements and hence lower carbon emissions. Water harvesting facilities, for example, contribute to water conservation by reducing demand on the mains water supply (also lessening energy demand and carbon emissions) and reduce the risk of flooding from excessive run-off. It was important that the features were distinct and marks may have been lost for excessive duplication of features that offer similar environmental credentials. This was most notably the case with different kinds of planting to encourage invertebrates, e.g. butterfly borders, sowings of hardy annual and wildflower meadows.

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|-----------|---|----------|
| <b>Q5</b> | <p>a) Describe <b>THREE</b> distinct features of gardens of the medieval period that are found in domestic gardens today.</p> | <b>6</b> |
|           | <p>b) Describe <b>TWO</b> distinct features of medieval gardens that are not common today.</p>                                | <b>4</b> |
- 
- Q5**
- a) Features of medieval gardens that are found in gardens today include 'trellis arbours' 'raised beds' and 'flowery grassland'. For each feature given some description was necessary in order to achieve full marks. E.g. for 'trellis arbours' it could be said that they serve a similar function (of privacy) in contemporary gardens and often have climbing plants growing up them.
- b) Two features of medieval gardens that are not common in gardens today are 'turf seats' and 'stew ponds' Again, for each feature stated, full marks would only have been awarded if some description was given, e.g. 'turf seats' are raised banks of soil covered with turf but are uncommon in gardens today due to the availability of modern garden furniture. With regard to 'stew ponds' it is accepted that fish ponds are indeed popular in gardens today but not for the same purpose as in medieval times. Indeed 'fish ponds' would have been accepted as an answer in part a) as long as this was explained, which by most candidates it was. A number of candidates mentioned 'four squares' cloister gardens which are not particularly associated with the medieval style and so were not awarded marks for this.

- |           |  |          |
|-----------|--|----------|
| <b>Q6</b> | a) Describe the significance of high altitude to the garden climate.                                 | <b>4</b> |
|           | b) Describe <b>THREE</b> garden design solutions to offset the limitations imposed by high altitude. | <b>6</b> |

- Q6** a) In describing the significance of high altitude to the garden climate, four valid points about climate were required in order to achieve full marks. These could have been 'decreased temperature', 'increased exposure to wind', 'increased rainfall' and 'higher frequencies/severity of frost'.

Some candidates cited higher light levels and/or lower oxygen levels as climatic characteristics of high altitudes. While both of these are correct, it is questionable how much impact they have on plants/gardens, especially at the relatively low 'high altitudes' where gardens occur in the UK. Half marks were generally awarded for these answers unless a good justification was given.

b) Three garden design solutions to the limitations brought about by high altitude might have been 'shelter belts', 'protective structures' and selection of 'suitable hardy plants'. In each case some description was necessary for full marks to be awarded. E.g. for 'shelter belts' this could have been 'the planting of hardy trees and shrubs on the windward side of the garden to create a sheltered microclimate within the garden itself'.

- Q7** a) Prepare **SIX** questions, as part of a client brief to identify the information that would be required to design a garden for a wheelchair user. **6**
- b) State **FOUR** features or characteristics of a site that would need specific attention in a site appraisal, when designing a garden for a wheelchair user. **4**

- Q7** a) This part of the question was answered perfectly by nearly all candidates. Possible questions could have been: 'Do you want to participate in gardening?'; 'How is the wheelchair propelled?'; 'Do paths need to accommodate a companion alongside the wheelchair?'; 'Do you have pets?'; 'What kind of planting do you like?'; 'Would you like to get out of the wheelchair and sit in garden chairs?'. There are many other questions of a similar nature as suggested by candidates. Some question might not have been awarded full marks if they are likely to have required some input from the designer, e.g. 'what kind of surface material should the paths be made of?'. Questions which were not acceptable at all included those about the site which would have been answered by the designer through the site appraisal.
- b) Four features or characteristics which would need specific attention in a site appraisal when designing for a wheelchair user include: 'width of existing access points'; suitability of existing gradients'; 'scope for adjusting gradients, given the space available'; 'differential between floor levels in the house and the ground levels outside'. One problem which arose with the answering of this part of the question was that several candidates answered with design requirements rather than observations in the site appraisal. E.g. 'there would need to be a ramp for access to the house' would not have been awarded full marks because it does not explicitly state a feature or characteristic of the site as required in the question.

**Q8** Describe **FIVE** distinct site factors that could cause different microclimates within a garden.

10

**Q8** Five site factors that could cause different microclimates within a garden are: 'trees on the windward side of the garden'; 'a south facing wall'; 'dips and hollows in the topography'; 'narrow spaces between buildings'; 'a tree canopy overhead'. For each answer given, further description was necessary in order to achieve full marks. E.g. for trees on the windward side of the garden' the description could have referred to the shelter this gives and the opportunity that therefore arises for growing a wider range of plants. For 'a south facing wall' and 'dips and hollows' reference could have been made to 'higher temperatures' and 'frost pockets' respectively and their corresponding influences on plants selection.

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