Including examiner comments

R2111

UNDERSTANDING GARDEN FEATURES, PLANT SELECTION & PLANNING

Level 2

Tuesday 7 February 2023

09:00 – 10:20

Written Examination

Candidate Number: .....

Candidate Name: .....

Centre Name: .....

IMPORTANT – Please read carefully before commencing:

i) The duration of this paper is **80** 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) Describe **FIVE** hardy annuals from distinct genera, suitable for planting in a domestic garden giving **ONE** decorative merit for **EACH** by completing the table below.

Plant Name	**Decorative Merit**	
		2
		2
		2
		2
		2

Total Mark

Please see over/…..

MARKS

Q2 a) Describe how to carry out the linear surveying technique using offsets. **4**

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b) Name **TWO** items of equipment necessary to carry out a linear survey. **2**

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c) Describe the reasons for measuring **TWO NAMED** garden features during a survey using offsets. **4**

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Total Mark

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MARKS

Q3 a) Name **TWO** soft landscape features of knot gardens. **2**

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b) Describe **ONE** distinct characteristic of **TWO NAMED** plants from distinct genera that makes them suitable for use in a knot garden by completing the table below.

Named Plant	**Characteristic**
1.	**2**
2.	**2**

c) Describe how **ONE NAMED** design principle is used in a knot garden to ensure that the design 'works'. **4**

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Total Mark

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Q4 a) State the reason for including **ONE NAMED** feature outside of the garden in the site appraisal. **MARKS**

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b) Describe how visual clues can be used to assess **FOUR** distinct microclimates in a site appraisal of a garden by completing the table below.

Microclimate	**Visual clue**	
		2
		2
		2
		2

Total Mark

Please turn over/…..

MARKS

Q5 a) Describe how **TWO NAMED** hard landscaping elements can contribute to cohesion in a garden. **8**

b) Name **ONE** natural and **ONE** man-made material suitable for hard landscaping elements. **2**

Total Mark

Please see over/…..

MARKS

Q6 a) Name **TWO** suitable grass species for **EACH** of **TWO NAMED** types of lawn.

Type of lawn	**TWO suitable grass species**
	1. **2.**
	1. **2.**

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b) Describe **TWO** sustainability considerations for the planning, establishment, or maintenance of a lawn.

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Total Mark

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MARKS

Q7 a) Describe **TWO** distinct landscape construction materials chosen at the design stage for their environmental sustainability. **6**

b) Describe **TWO** distinct working practices that can minimise waste during garden construction. **4**

Total Mark

Please see over/…..

MARKS

Q8 a) Name **TWO** soft landscape features associated with an informal garden style. **2**

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b) Describe **FOUR** herbaceous perennials from distinct genera which could be grown in an informal garden by completing the table below.

Plant Name	**Decorative Merit**	
		2
		2
		2
		2

Total Mark

Please turn over/…..

MARKS

Q9 Describe the design and practical considerations for the selection of **ONE NAMED** natural and **ONE NAMED** man-made paving material suitable for constructing the surface of paving for a patio in a garden situation by completing the table below. **2**

Named material	**Design considerations**	**Practical considerations**

4

4

Total Mark

Please see over/…..

MARKS

Q10 a) State the difference between hazard and risk as used in risk assessments:

i) hazard **2**
ii) risk **2**

i).....

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b) State **ONE** way that the topography of a garden may be hazardous to users. **2**

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c) Describe **ONE** design solution for the situation stated in b) which will minimise risks caused by site topography **4**

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Total Mark

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R2111
UNDERSTANDING GARDEN FEATURES, PLANT SELECTION & PLANNING

Level 2

Tuesday 7 February 2023

Candidates Registered		**Total Candidates Passed**	
Candidates Entered	637	Passed with Commendation	327
Candidates Absent/Withdrawn	TBA	Passed	217
Candidates Deferred	TBA	Failed	93

Senior Examiner's Comments:

1 Candidates should be able to demonstrate a good range of plant knowledge and be able to give accurately named plant examples where appropriate. Common names and generic names are often too vague and cannot be rewarded in the positive manner that genus, species and where appropriate, variety/cultivar can. This is particularly important when answering questions relating to particular (named) plant(s). Marks can only be awarded for these narratives where the example(s) are correctly and fully identified.

2 Candidates must be able to display accurate knowledge of the technical terms and concepts detailed in the syllabus, in the context of horticulture and also be aware that wider interpretation will not be rewarded. The examination should be regarded as a possible introduction to higher level studies, which will only be open to those who are in possession of a clear understanding of the horticultural terms and concepts which are current.

3 The introductory rubric given on the first page of each question paper should be read carefully by candidates. At each examination there are a significant number of candidates who ignore or misread the instructions given and consequently may not perform as well as they could have done.

4 Candidates should pace themselves during each paper. The most successful candidates allow sufficient time to read the question thoroughly before answering it and also take time to read through their answers. They should take care to write as legibly as possible, so that the examiner is in no doubt about what is intended.

5 Candidates need to interpret key words within questions, particularly those such as 'state', 'list' and 'describe'. Questions requiring descriptions or explanations obviously require a more detailed answer than those requiring a list.

6 It is important to ensure that responses to questions are to the point. Candidates should bear in mind that small sketches might be used to convey information more succinctly than words.

7 Successful candidates ensure that their answers are focused and to the point. It is disappointing when they cannot be rewarded for their efforts because the answer is irrelevant to the particular question. Candidates should take note of the mark allocation for specific sections and allocate their time and efforts accordingly.

8 Diagrams can enhance an answer and where appropriate can replace detailed descriptions. They should be large, clear and well annotated, ensuring that labels are properly attached to the features they describe. Diagrams should preferably be in pencil. Colour may be used successfully but only where it is relevant to the answer.

9 In each examination it is clear that some candidates are ill prepared to answer papers of the type set. It is essential that candidates have the opportunity to practice questions. Ideally some papers should be answered in a time constrained situation. Appropriate feedback must, in any case be provided

Q1

a) Describe **FIVE** hardy annuals from distinct genera, suitable for planting in a domestic garden giving **ONE** decorative merit for **EACH** by completing the table below.

Plant Name	**Decorative Merit**

Q1) A range of suitable hardy annuals and their decorative merits were provided by the best candidates who achieved full marks. These included:

Plant Name	**Decorative Merit**
Lathyrus odoratus	Climbing plant with tendrils. The flowers have wine-red standard petals and purple wings and keels.
Calendula officinalis	Open, daisy-like flowers with vivid orange petals.
Limnanthes douglasii	Open, bowl-shaped yellow flowers with white-tipped petals.
Nigella damascena 'Miss Jekyll'	Feathery foliage and pale blue semi-double flowers.
Papaver commutatum 'Ladybird'	Open, brilliant crimson flowers with a large black spot near the base of each petal.
Helianthus annuus	A large open flower with an outer circle of yellow petals and a central brown disc.

Candidates who named plants with perennial or biennial life cycles could not be awarded any marks.

No marks could be awarded to candidates who named a genus and not the species of a plant where not all of the genus were applicable to the question e.g. *Papaver* spp. many of which are perennial.

Q2

a) Describe how to carry out the linear surveying technique using offsets.

b) Name **TWO** items of equipment necessary to carry out a linear survey.

c) Describe the reasons for measuring **TWO NAMED** garden features during a survey using offsets.

Q2a) Candidates who had a good understanding of how to carry out the linear surveying technique using offsets were awarded full marks. Suitable answers included:

- establishing a fixed baseline tape along a fixed datum line e.g. a house
- taking a measurement from the feature being surveyed to the baseline
- ensure that the offset measurement meets the baseline at a 90º angle
- take a measurement along the baseline to where it is met by the offset measurement to accurately position the offset
- record all measurements on a survey sketch.

Q2b) The majority of candidates were able to name suitable items of equipment necessary to carry out a linear survey and gained maximum marks. These included:

30m or 50m landscape measuring tape, rigid measuring tape, pegs and line, paper and pencil/pen.

Q2c) Good descriptions of the reasons for measuring specific garden features during a survey using offsets were provided by many candidates who achieved maximum marks. Suitable answers included:

- the base of a tree trunk located very close to a baseline, making it easy, and convenient to plot it by means of an offset rather than by triangulation which could involve two longer measurements
- multiple points along the edge of a wildlife pond can be recorded using offsets to a baseline, enabling the accurate recording of a curving or irregular shaped outline
- to record the location of each of several trees in a copse, or together in a garden. It would be easier and quicker to offset to a baseline than record many triangulation measurements.

Q3

a) Name **TWO** soft landscape features of knot gardens

b) Describe **ONE** distinct characteristic of **TWO NAMED** plants from distinct genera that makes them suitable for use in a knot garden.

Named Plant	**Characteristic**
1.	
2.	

c) Describe how **ONE NAMED** design principle is used in a knot garden to ensure that the design 'works'.

Q3a) Full marks were awarded to candidates who named suitable soft landscape features of knot gardens. These included:

- Intertwining, low, tightly clipped hedges of evergreen plants
- Infill between hedges of a flowering plant which can be decorative, medicinal or an aromatic herb.

Q3b) The best candidates were able to provide the characteristics of specific plants that are suitable for use in a knot garden and gained full marks. These included:

Named Plant	**Characteristic**
1. *Buxus microphylla*	Small evergreen leaves with a tight growth habit which will respond to hard pruning.
2. *Buxus sempervirens* 'Suffruticosa'	Dense evergreen leaves with a slow growth rate which does not necessitate regular clipping.
3. *Lavandula angustifolia*	Compact, bushy habit with narrow, aromatic, grey-green leaves. Good for infill. Carries short, dense spikes of fragrant, pale to deep purple flowers throughout the summer.
4. *Thymus serpyllum*	Dwarf, aromatic, evergreen shrub forming a low, wide mat to 5cm in height. Tiny, pointed, dark green leaves and tight clusters of purple flowers in May.

Q3c) Candidates who were able to describe how a specific design principle is used in a knot garden to ensure that the design 'works' achieved full marks. Suitable answers included:

Balance

Balance is created through the use of symmetry. Patterns created by low clipped hedges which are designed to be viewed from above are repeated on either side of paths providing an axis in bilateral or quadrilateral symmetry.

Form

Form of intricate patterns of hedges is repeated in knot gardens. The hedges are formed to interweave and are designed to replicate Elizabethan embroidery, often designed to be viewed from above.

Unit and Cohesion

Unit and cohesion are achieved through the repetition of colour, materials and texture in plants and materials. A single plant species, e.g. *Buxus microphylla* is used for all hedging, and as single plant infill e.g. *Lavandula angustifolia* is used consistently throughout. Crushed red brick is used to form all paths through the knot garden.

Other design principles which are used in knot gardens include:

scale/proportion, movement/direction, rhythm, repetition, simplicity.

Candidates who described the use of symmetry as a design principle could not be awarded any marks. Symmetry can be an element used to create balance within gardens but is not a principle in its own right.

Q4

a) State the reason for including **ONE NAMED** feature outside of the garden in the site appraisal.

b) Describe how visual clues can be used to assess **FOUR** distinct microclimates in a site appraisal of a garden by completing the table below.

Microclimate	**Visual clue**

Q4a) Most candidates were able to provide reasons for including specific features outside of the garden in the site appraisal and were awarded maximum marks. Acceptable answers included:

- a large oak tree in a neighbouring garden might cast shade over one part of the garden which would then be unsuitable for a vegetable growing area
- an attractive architectural feature e.g. a church spire may be a feature outside the garden which should be included in the site appraisal. The style and shape of the spire could influence the design of the garden e.g. the shape of the spire could be borrowed and mirrored in the garden planting choices
- eyesores e.g. an electricity pylon or the neighbours' bedroom windows could detract from the enjoyment of the garden. If these are recorded during the site appraisal, ways to screen these can be considered for inclusion in the new design.

Q4b) Good descriptions of how visual clues can be used to assess specific microclimates in a site appraisal of a garden were provided by many candidates. These gained full marks and included:

Microclimate	**Visual clue**
Wind tunnel	A narrow passageway which faces the prevailing wind, plants with damaged branches or pots which have been blown over.
Frost pocket	In a sloping garden a solid feature at the base of a wall etc. can trap cold air, creating cold and slow to warm areas.
Heavy shade	Plants growing under the dense canopy of an evergreen tree have etiolated stem growth or yellowing leaves.
Rain shadow	A house or a wall with an overhang protected from rainfall has permanently dry soil at the base.
Sun trap	A south facing area with a wall that receives sun most of the day. Temperatures are noticeably warm and light is bright throughout the day.

Q5

a) Describe how **TWO NAMED** hard landscaping elements can contribute to cohesion in a garden.

b) Name **ONE** natural and **ONE** man-made material suitable for hard landscaping elements.

Q5a) Candidates who had a good understanding of how specific hard landscaping elements can contribute to cohesion in a garden were awarded full marks. Suitable answers included:

Unity/cohesion is the consistent use of, and linking of elements in the garden. All parts of the design form a unified whole, linked by consistent styles, materials, forms or colours in hard landscaping and planting.

Patio

A patio could be made from natural sandstone paving stones repeating the material around the garden and in the natural sandstone of the house. This material could also be repeated in other structures e.g. the uprights of a pergola and dry stone boundary walls.

Paths

The style/shape of paths could be cohesive with the style of the garden. Straight paths with 90º angles of polished granite will suit a formal garden style while curved, meandering paths which are gravel edged with logs suit an informal garden style.

Furniture

Furniture, i.e. table, chairs, benches can be selected to match timber used for other purposes in the garden e.g. pergolas or even exposed timbers on the house. The timber may also be stained to pick up colour themes used in features e.g. ceramic pots or even planting.

Candidates who identified materials without reference to an element could not be awarded any marks.

Q5b) Maximum marks were achieved by candidates who were able to name natural and man-made materials suitable for hard landscaping elements. These included:

Natural

Softwood, hardwood, wicker, pine planks.

Man-made

Concrete blocks, cast iron, clay bricks, concrete slabs, plastic and wood composite deck planks.

Candidates who used generic terms for materials e.g. wood, concrete, metal could not be awarded full marks.

Q6

a) Name **TWO** suitable grass species for **EACH** of **TWO NAMED** types of lawn.

Type of lawn	**TWO suitable grass species**
	1. **2.**
	1. **2.**

b) Describe **TWO** sustainability considerations for the planning, establishment, or maintenance of a lawn.

Q6a) A range of suitable grass species for specific types of lawn were named by many candidates who were awarded full marks. These included:

Utility lawn – *Lolium perenne, Festuca rubra rubra, Poa pratensis, Agrostis capillaris.*
It should be noted that to be considered a utility lawn the species mix must include *Lolium perenne.*

Ornamental lawn – must include; *Agrostis capillaris* and *Festuca rubra* subsp. *commutata.*

Shade tolerant lawn – must include *Festuca rubra rubra,* and one other from; *Poa nemoralis, Poa trivialis, Lolium perenne.*

Q6b) Many candidates provided good descriptions of appropriate sustainability considerations for the planning, establishment or maintenance of a lawn and achieved maximum marks. These included:

- Avoid the use of mains water to irrigate the lawn. In summer allow the grass to go brown in extremely hot/dry conditions. A utility lawn will green up quickly compared to fine turf species. If irrigation is needed use harvested rain water or grey water.
- Consider whether to establish a lawn from turf or from seed. Turf production involves the removal of soil from another area of land which can cause soil erosion, the use of fossil fuel for machinery and high fertiliser inputs. Turf is much heavier to transport compared to seed and therefore more fossil fuels are used (petrol/diesel) with higher carbon emissions.
- Lawns lack a range of plant species for native wildlife/pollinators and do not support wildlife by food sources or habitat. Consider leaving some native low growing native species to flower in a lawn as a source of food for pollinators.
- The use of carbon-based energy sources for machinery to maintain lawns e.g. petrol mowers or electricity uses carbon releasing carbon dioxide into the atmosphere. Plan to use manual mowers and minimise the extent of lawn in a garden.

Q7

a) Describe **TWO** distinct landscape construction materials chosen at the design stage for their environmental sustainability.

b) Describe **TWO** distinct working practices that can minimise waste during garden construction.

Q7a) The best candidates described specific landscape construction materials chosen at the design stage for their environmental sustainability and were awarded full marks. Suitable answers included:

Softwood timber

Softwood timber with Forestry Stewardship Council (FSC) certification ensures that it comes from sustainably managed forests where trees are re-planted and habitats are protected.

Other considerations include sourcing locally grown softwood or rustic poles e.g. hazel from community forests where plants are coppiced and managed to ensure habitats and biodiversity are protected. By sourcing locally, transport miles are reduced which reduces the amount of carbon dioxide released into the atmosphere which contributes to global warming.

Clay bricks

Selecting clay bricks from a reclamation yard ensures the re-use of a material which might otherwise go to landfill. By using reclaimed bricks, the pollution and carbon released during the manufacture and distribution of new bricks is avoided.

Reclaimed/recycled limestone

By using reclaimed/recycled limestone from an old rock garden will avoid quarrying. The use of new material can be very damaging to the local and wider environment through habitat loss.

Other materials described, which gained marks included:

concrete products, e.g. paving slabs, blocks, pavers.

Q7b) The majority of candidates provided descriptions of distinct working practices that can minimise waste during garden construction and gained full marks. Acceptable answers included:

- avoid wasting mains water when mixing concrete by turning off taps when the water is not required. Use harvested rainwater and check for leaks in hose pipes
- topsoil excavated during digging for foundations can be used for filling raised beds for growing vegetables or creating new levels in the garden
- when hard landscaping is demolished in a garden re-use or re-purpose the material. Bricks from brick walls can be used to build a cold frame or broken concrete slabs can be used as a sub-base for a patio.

Q8

a) Name **TWO** soft landscape features associated with an informal garden style

b) Describe **FOUR** herbaceous perennials from distinct genera which could be grown in an informal garden.

Plant Name	**Decorative Merit**

Q8a) Candidates named a range of suitable soft landscape features associated with an informal garden style and were awarded full marks. These included:

- mixed borders of herbaceous plants, annuals, grasses and self-seedling annuals
- mixed native hedging allowed to flower and fruit
- sweeping herbaceous borders and drifts of grasses
- wildflower meadows of native flowering plant species
- wildlife ponds with marginal, deep water and bog plants.

Q8b) Most candidates had a good knowledge of herbaceous perennials which could be grown in an informal garden and achieved maximum marks. Suitable answers included:

Plant name	**Decorative merit**
Acanthus spinosus	Narrow, arching dark green leaves, deeply cut to the mid rib. 1m high racemes of pure white flowers with purple bracts.
Hosta sieboldiana var. *elegans*	Rounded, heart-shaped, deeply puckered blue-grey leaves with bell-shaped, pale lilac-grey flowers.
Alchemilla mollis	Rounded, toothed, hairy, pale green leaves with loose cymes of tiny greenish-yellow flowers.
Verbena bonariensis	Numerous branched clusters of small, purple flowers on long, thin stems.
Geranium 'Rozanne'	Bowl-shaped violet blue flowers which are 5cm wide, with a white centre.
Echinacea purpurea	Upright perennial with coarsely hairy, ovate or lance-shaped leaves. OR Solitary flower heads with slightly reflexed, light purple rays and brown central disc.

Q9

Describe the design and practical considerations for the selection of **ONE NAMED** natural and **ONE NAMED** man-made paving material suitable for constructing the surface of paving for a patio in a garden situation by completing the table below.

Named Material	**Design considerations**	**Practical considerations**

Q9) Full marks were awarded to candidates who were able to describe the design and practical considerations for natural and man-made paving materials suitable for a patio in a garden situation.

Design considerations include; aesthetics e.g. colour, pattern and proportion of the material.

Practical considerations include; e.g. ease of installation, sustainability and maintenance requirements.

Named material	**Design considerations**	**Practical considerations**
Sandstone paving flags - Natural	Can be selected in sandstone areas for visual cohesion with the surrounding stone-built buildings or landscape. A riven surface and fluctuations in natural colours add interest in an informal garden.	Susceptible to weathering and algae growth, making them slippery. There are sustainability concerns regarding quarrying stone which destroys and damages habitats.
Concrete paving blocks – Man-made	Blocks can be laid in different patterns e.g. circles or herringbone patterns to give texture and pattern detail. The colour can match the colour of materials of the house to give cohesion. The blocks can also be used (repeated) to make paths or edging around a lawn to create unity.	A skilled workforce is needed to lay blocks. Weed growth between blocks can cause maintenance problems. Individual units are lighter to handle compared to large flags/slabs. Concrete is unsustainable as it uses a lot of energy (fossil fuels) to manufacture. A solid surface is suitable for wheelchair users and provides a firm, solid surface with good traction.

Other suitable materials that were named included:

Natural – softwood timber, deck planks, slate chippings.

Man-made – clay bricks, poured concrete, concrete slabs.

Q10

a) State the difference between hazard and risk as used in risk assessments:

i) hazard;
ii) risk.

b) State **ONE** way that the topography of a garden may be hazardous to users.

c) Describe **ONE** design solution for the situation stated in b) which will minimise risks caused by site topography

Q10a) Candidates who clearly understood the difference between hazard and risk as used in risk assessments gained full marks. Acceptable answers included:

i) **Hazard**

A hazard is something, a situation or feature which could be a potential source of harm or adverse health effect on people.

ii) **Risk**

A risk is the likelihood that a person might be harmed or suffer an adverse health effect if exposed to a hazard together with the actual severity of the injury or health effect.

Q10b) Many candidates correctly stated how the topography of a garden may be hazardous to users and achieved maximum marks. Suitable answers included:

A steep slope in the garden which is unsuitable for a wheelchair user due to the risk of poor traction between the wheels and a slippery surface e.g. grass. The speed of movement with gravity down the slope would be unsafe and there would be the risk that the wheelchair could tip over.

Other hazards associated with topography include:

Undulations (bumps and hollows) which may present trip hazards and low-lying areas may be boggy and slippery when wet.

Q10c) A range of relevant design solutions which will minimise risks caused by site topography were provided by the best candidates who were awarded full marks. These included:

Build a path to gently wind back and forth across the slope, including a non-slip surface treatment material and handrail.

Install steps with even risers, (for non-wheelchair users) a handrail to steady users if they stumble and treads with a non-slip surface.