Including examiner comments

R3114

UNDERSTANDING A RANGE OF SPECIALIST ELEMENTS IN THE ESTABLISHMENT OF GARDEN & URBAN PLANTINGS

Level 3

Thursday 22 June 2023

15:35 – 16:40

Written Examination

Candidate Number:……

Candidate Name:……

Centre Number/Name:……

IMPORTANT – Please read carefully before commencing:

i) The duration of this paper is **65** 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) Name **TWO** woody plants suitable for cloud pruning. **2**

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b) State the sequence of tasks required for formative pruning when establishing a cloud pruned specimen. **5**

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Please see over/…..

MARKS

c) State **THREE** routine maintenance tasks for a cloud pruned specimen. **3**

Total Mark

Please turn over/…..

MARKS

Q2 a) State **TWO** characteristics of plants suitable for a spring bedding scheme, giving an appropriate plant example for **EACH** by completing the table below.

Characteristic	**Named plant example**
1.	
2.	

2

2

b) Describe the schedule of tasks required to establish and manage a traditional spring bedding display under the following headings:

i) establishment **3**

ii) maintenance **3**

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MARKS

Please turn over/…..

Total Mark

MARKS

Q3 a) Select **TWO NAMED** shrubs for planting in a woodland garden to increase the range of wildlife, giving a reason for **EACH** selection. **4**

Please see over/…..

b) Describe **THREE** further ways to increase the range of wildlife in the garden in a).

MARKS
6

Total Mark

Please turn over/…..

MARKS

Q4 a) Describe the characteristics of green roofs under **EACH** of the following headings:

i) site selection and preparation **2**
ii) growing media **2**
iii) characteristics of suitable plants **4**

Please see over/……

MARKS

b) Name **TWO** plants suitable for use on green roofs. **2**

Total Mark

Please turn over/…..

MARKS

Q5 a) Identify **FOUR** distinct potential hazards within a community garden. **2**

b) Explain how **EACH** of these hazards can be managed to reduce risk to users within a community garden. **8**

Please see over/…..

MARKS

Total Mark

Please turn over/…..

MARKS

Q6 A new courtyard garden is to be planted and established.

Describe **FIVE** distinct ways to conserve water on this site. **10**

MARKS

Total Mark

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R3114

UNDERSTANDING A RANGE OF SPECIALIST ELEMENTS IN THE ESTABLISHMENT OF GARDEN & URBAN PLANTINGS

Level 3

Thursday 22 June 2023

Candidates Registered	**87**		**Total Candidates Passed**	71	86%
Candidates Entered	82	94%	Passed with Commendation	37	45%
Candidates Absent/Withdrawn	5	6%	Passed	34	41%
Candidates Deferred	0	0%	Failed	11	14%

General comments

Where a plant example is chosen, it is important to write the FULL botanic name and not just a partial name, following the correct naming protocols. Where named plant examples are required, common names are not credited at Level 3.

Spellings of scientific terms and botanic plant names need to be full and accurate - poor spellings may be penalized.

Questions - It is essential to read the question carefully and to note the **key words** before starting to write to ensure answers are relevant. 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.
Where a number of answers were specified in the question and a candidate gave a list with more than that number, **only the first answers** in the list were marked, e.g. where the question stated 'Name **TWO** locations' or 'State **TWO** ways' only the first **TWO** answers were marked even if the correct answers were given further down. It is helpful (but not essential) if the answers are numbered in the text or separate paragraphs or bullet points are used.

Plant names - Where named plant examples were asked for, **full botanical names are 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 must be carefully and correctly positioned to avoid ambiguity. Marks can be easily lost if this is not followed. Labels must actually touch the appropriate part of the diagram and must not be left hanging in mid air. Annotations on diagrams can be accepted as an alternative to description in the text as long as these are clear and answer the question. No marks were awarded for artistic merit or for unlabelled diagrams.

Continuation sheets - Where these have been included, it is vital that the relevant question number is included in the left hand margin if information written here is to be considered. These should also be attached to the answer booklet in the appropriate place and candidates should indicate in their answer booklet that they have written part of their answer on the attached sheet/s.

Q1 a) Name **TWO** woody plants suitable for cloud pruning.

b) State the sequence of tasks required for formative pruning when establishing a cloud pruned specimen.

c) State **THREE** routine maintenance tasks for a cloud pruned specimen.

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Q1 a)

Plants suitable for cloud pruning include *Buxus sempervirens, Taxus baccata, Ilex crenata.*

b) Candidates varied in the detail of their answer to this part of the question. A description of formative pruning for a cloud pruned specimen starting with a feathered maiden or constructive pruning of a suitable mature shrub were both accepted.

A suitable sequence of tasks starting with a feathered maiden would be:

Year 1 Select laterals on feathered maiden, remove unwanted ones, cut chosen ones back by half in autumn. Bend pliant branches down to 10% below horizontal, tie to the main stem with string to keep in place.

Year 2 clear new growth (sublaterals) from laterals to leave bare branches with terminal clusters of sublateral growth. Clear main stem of unwanted new shoots. Prune 'cloud' growth by third to half to encourage bushiness. Repeat in year 3.

Starting with a more mature specimen, prune out and thin out crowded branches from the centre of the plant to expose the main network of branches, then select suitable branches to be maintained and prune out the rest to establish desired shape. If needed branches can have weights tied on them to gain desired shape.

Prune out growing tips to desired height and prune side shoots at ends of branches to create cloud effect. Clear main stem and side branches of any unwanted new shoots

Once desired shape is reached, trim tips to encourage thickening, filling out of the 'clouds'.

A small number of candidates were unclear about how to achieve a cloud pruned specimen and described pruning cloud pruned hedges (the question asked about a **specimen**) or topiary.

c) Three maintenance tasks apart from the generic tasks of watering/feeding/weeding, would consist of pruning/clipping to shape, annually in late summer or after flowering for slower growing specimens, regularly during the growing season for others, removal of unwanted growth from main stem or branches, and removal of suckers.
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Q2 a) State **TWO** characteristics of plants suitable for a spring bedding scheme, giving an appropriate plant example for **EACH** by completing the table below.

Characteristic	**Named plant example**
1.	
2.	

b) Describe the schedule of tasks required to establish and manage a traditional spring bedding display under the following headings:

i) establishment
ii) maintenance

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Q2 a)

This question was not answered well.

Candidates are reminded that they need to read the question carefully: this asked for two characteristics of plants suitable for a spring bedding display, then a specific plant example which possessed the stated characteristic.

'Characteristics' would be: winter hardy, resilient to bad weather, evergreen, spring flowering bulbs, biennial (to flower in spring), flowering through winter into spring, F1 hybrids. Most candidates selected two plant examples and gave a general description of the plants, losing the marks available for this section.

For the characteristic 'flowering through winter into spring' an example could be *Primula* 'Crescendo Rose Shades', for biennial, flowering in spring *Erysimum* 'Scarlet Bedder' and for 'evergreen' *Bellis* 'Bellisima'.

Named cultivars of *Hyacinthus* and *Tulipa* would be suitable examples of spring flowering bulbs, but unsuitable bulbs were given as examples by some candidates e.g., *Galanthus* spp. and *Crocus* spp. When specifying plants care needs to be taken over the naming and appropriate cultivar names given, i.e *Bellis perennis* (the lawn daisy) and *Primula vulgaris* (native primrose) gained no marks. Some candidates also gave answers that were summer bedding plants, e.g., *Salvia splendens*, *Begonia semperflorens*. which would certainly not be winter hardy or resilient to bad weather.

b)

i) Answers giving a good description of ground preparation before planting could obtain the full three marks and were credited.
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Tasks included:
Clearing out previous summer bedding and weeds, incorporate any soil conditioner, organic matter and base dressing of balanced fertiliser, rake and level to an appropriate tilth, place and plant groundwork plants first, place and plant bulbs next, water in.
It was notable that many candidates did not understand what a 'traditional spring bedding display' meant. This is planted in autumn and remains in place through winter to give a display of flowers in spring. Many candidates described summer bedding. Some described planting only bulbs, other planting into borders or suggested using shrubs or perennials, which are not appropriate as they would need to be dug up in the late spring to make way for a new summer display. The confusion seems to be between winter/spring container displays, which routinely use perennials and young shrubs for winter colour alongside bedding and bulbs (and recycles the perennials after use) and a spring bedding display in the ground, which is made up of biennials for early flowering, bulbs and short-lived perennials treated as expendable, and which is removed in the late spring to make way for summer bedding.

ii) Many answers for maintenance suggested that summer bedding was being described (though marks were given where the tasks described were appropriate such as dead heading). Watering would be necessary after establishment only if conditions were unseasonably dry; regular watering should not be necessary in a typical winter. Weeding and removal of debris and fallen leaves would be necessary as would removal and gapping up of dead or weather damaged plants. Only certain pests and diseases are prevalent over winter (grey mould, slugs/snails, aphids in spring).

Q3 a) Select **TWO NAMED** shrubs for planting in a woodland garden to increase the range of wildlife, giving a reason for **EACH** selection.

b) Describe **THREE** further ways to increase the range of wildlife in the garden in a).

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Q3 a) This question was generally well answered, but candidates are reminded to read the mark allocation and question descriptors; where two marks are available for each 'description', more detail is needed to give full marks than 'reduce pesticide use' or 'creating a logpile for beetles'.

Many candidates chose examples such as *Corylus avellana,* providing a food source for mammals and birds, and *Crataegus monogyna* providing flowers, berries as a food source for insects and birds, which can be shrub-like or trees. They were accepted as correct in this case. Other suitable shrubs which offer food, nesting sites and shelter are *Berberis darwinii, Camellia japonica, Hamamelis mollis, Buddleia davidii, Mahonia x media* 'Winter Sun', *Pieris japonica*; in a woodland garden winter-flowering shrubs come into their own, providing nectar and pollen for insects. Shrubs can also form part of a wildlife corridor, which will increase the range of wildlife in the garden.

b) There are a range of valid ways, other than by planting shrubs, that can be used to increase the range of wildlife in a woodland garden. These include crown lifting trees to allow a greater range of understorey plants to flourish, planting specific trees, fruit and seed-bearing plants, ground flora for ground nesting and shelter, leaving dead wood and dead hedging, creating logpiles, accumulating leaf litter, providing water, nesting boxes and bug hotels. Also make designated paths through the woodland garden to protect insects in and above soil level from trampling and other wildlife from disturbance, and have a quiet area where garden activities and maintenance are not going to disturb the wildlife.

Whichever three ways were selected by candidates, each required a description of how it would increase the range of wildlife, such as for a logpile – 'shelter for overwintering wildlife small mammals, reptiles, home to insects such as beetle grubs which are prey for other wildlife' to earn maximum marks.
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Q4 a) Describe the characteristics of green roofs under **EACH** of the following headings:

i) site selection and preparation
ii) growing media
iii) characteristics of suitable plants

b) Name **TWO** plants suitable for use on green roofs.

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Q4 a)

i) For site selection and preparation a range of answers were credited including 'carrying out a structural survey for load bearing capacity' and 'install geotextile/waterproof membrane' and 'create a framework to support growing media'.
ii) The growing media should be free draining but retain some moisture without being excessively heavy, should not be so lightweight that it blows away, avoid fine particulates that could block drainage, and contain little organic matter. A mix of soil-based compost which includes LECA, crushed brick, perlite, coarse sand would be ideal.
iii) The expected characteristics of suitable plants are low-growing, tolerant of air pollution/wind/drought/UV exposure, mat-forming or non-invasive root system, low nutrient requirement with a moderate growth rate.

b) The plant examples were poorly given. Just 'Sedums' is not an acceptable answer because there are many species which could not be grown on a roof, e.g., *Sedum spectabile* (*Hylotelephium*). Good examples suitable for use on green roofs included *Sedum cauticola* 'Coca-Cola', *Sempervivum tectorum*, *Thymus serpyllum*, *Armeria juniperifolia, Acaena magellanica.*
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Q5 a) Identify **FOUR** distinct potential hazards within a community garden.

b) Explain how **EACH** of these hazards can be managed to reduce risk to users within a community garden.

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Q5 a)

Although this question gave a context of a community garden, many candidates answered this with examples which would relate to any garden with public access, however infrequent. Some candidates were confused about what constitutes a hazard and how risk relates to that; and gave poor answers because of this. Risk assessment was mentioned in very few answers to b).

Answers relating uneven ground and slippery slopes, toxic plants and thorny or spiky plants, water features and low branches on trees were therefore accepted as hazards with potential risks to users as these could occur *within* a community garden, and the question did not ask for hazards which were *specific* to a community garden.

Expected answers related to -

- the use of the garden by a community - which could include untrained volunteer workers (hazards relating to tool use in proximity to others, unsafe storage, unaccustomed exercise or exposure to sun), presence of children or vulnerable adults (requiring safeguarding and supervision)
- public access (personal safety of users, security of site for tools and equipment, antisocial behaviour, fly tipping, dog mess, litter etc)
- location of the site (if in a city, potential for difficult access because of busy roads, air pollution, ground pollution), existing trees or buildings on the site

b) Where answers for a) were very general, the level of detail given in b) was rarely enough to achieve high marks if there was no contextual information relating the answer to a community garden. So, slips and trips could be avoided by improving path surfaces, keeping them free of fallen leaves and algae and installing signage for uneven ground, but a better answer would suggest a risk assessment by the community garden committee/organisers and including path clearing in the rota of seasonal tasks for volunteers, or make it part of a day's volunteering to put away tools, hosepipes etc after use and for a check to be done that the site is clear of obstructions etc when it is closed up at night. Training programmes in the use of tools and equipment would reduce the chance of accidents. Also implementing first aid training and providing washing facilities for hygiene would reduce risks of infection as would providing guidance on suitable PPE.

Vandalism and theft do not constitute a hazard in themselves, but the result of such activity may create a hazard, e.g., broken glass or missing metal work (drain and inspection covers). Unless this was specifically explained no marks were awarded.
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Q6 A new courtyard garden is to be planted and established.

Describe **FIVE** distinct ways to conserve water on this site.

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Q6 This was generally answered well. Once again, with five distinct ways to conserve water requested, a description for two marks needed to go into some detail as well as being related to the context given, in this case a courtyard garden. Good answers reflected that water is lost by (evapo)transpiration, usage or drainage and showed how these can be mitigated.

To gain full marks for the installation of a drip irrigation system or leaky hose, a good answer would expand this to explain that this would deliver water close to the rootzone to be less wasteful than a sprinkler system, or to state that it could be timed to deliver water at night to prevent waste through evaporation.

Other good answers were the incorporation of organic matter into the soil which would then hold a greater amount of moisture at root level; the application of a mulch layer 5 – 10 cm thick of chipped slate or spent mushroom compost which would reduce the evaporation of water from the soil surface; using drought resistant plants such as *Agave filifera* or *Lavandula angustifolia* which have less of a demand on water supplies. Another way might be to use a self-watering container so that the plant takes just as much water as it needs and none is lost. Lots of candidates mentioned waterbutts but failed to explain that they would be a source of water during dry spells/drought, but generally there were plenty of good ideas and well explained.

Generalisations, for example suggesting the use of a watering can or mulching without details of materials or depth, did not achieve high marks. Answers relating to water attenuation (soakaways), flood relief (rain gardens) and SUDS gained no marks as they did not relate to a courtyard garden.

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