



R3113

**UNDERSTANDING THE SETTING OUT AND CONSTRUCTION
OF LANDSCAPING ELEMENTS IN THE GARDEN**

Level 3

Friday 17 February 2012

13:30 – 14:45

Written Examination

Candidate Number:.....

Candidate Name:.....

Centre Number/Name:.....

IMPORTANT – Please read carefully before commencing.

- i) The duration of this paper is **75 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.
- vii) Please note, sufficient lined space is provided. It is not necessary that all lined space is used in answering the questions.

Ofqual Unit Code D/601/3836

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ANSWER ALL QUESTIONS

MARKS

- Q1** a) Describe **TWO** distinctly different methods of accurately setting out a right angle on the ground.

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- b) Describe how the following features are set out on the ground from scale plans:

- i) a fence line;
- ii) a round pond;
- iii) a curved shrub border.

6

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Please see over/.....

Total Mark

3

- 4

Please turn over/.....

Q3 a) State what is meant by 'permeable' paving.

2

[illegible]

b) Describe **TWO** surface materials suitable for a permeable hard-standing area in a domestic front garden.

4

Please see over/.....

- c) Specify the appropriate foundations for **ONE** of the permeable hard-standing surface materials stated in b).

4

Total Mark

Please turn over/.....

Q4 a) Specify the foundations for a flight of three steps constructed from **NAMED** materials.

5

Please see over/.....

b) State **FIVE** safety features that should be included in the construction details of a flight of steps.

5

Total Mark

Please turn over/.....

Q5

Draw a labelled cross-sectional diagram to show the construction details of a retaining wall using **NAMED** materials and including:

- i) appropriate foundations;
- ii) **TWO** methods of providing drainage from the area behind the wall.

10

Total Mark

11

Q6 a) Specify **TWO** methods of construction for a formal raised pond.

4

b) Describe the procedure for constructing the pond using **ONE** of the methods in a).

6

Please see over/.....

Total Mark

Please turn over/.....

Q7

Review methods of constructing a rock garden to achieve a natural appearance.

10

Please see over/.....

Total Mark

- Q8** a) State **THREE** materials suitable for edging an aggregate driveway in a domestic garden.

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- b) Describe the installation procedure for **ONE** of the materials stated in a).

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**The Royal Horticultural Society, Wisley, Woking, Surrey GU23 6QB
Charity Registration Number: 222879/SC038262**



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

13:30pm Friday 17 February 2012

R3113

**UNDERSTANDING THE SETTING OUT AND CONSTRUCTION
OF LANDSCAPING ELEMENTS IN THE GARDEN**

Candidates Registered	34		Total Candidates Passed	14	56.0%
Candidates Entered	25	73.53%	Passed with Commendation	3	12.0%
Candidates Absent	5	14.71%	Passed	11	44.0%
Candidates Deferred	3	8.82%	Failed	11	44.0%
Candidates Withdrawn	1	2.94%			

- Q1**
- a) Describe **TWO** distinctly different methods of accurately setting out a right angle on the ground.
 - b) Describe how the following features are set out on the ground from scale plans:
 - i) a fence line;
 - ii) a round pond;
 - iii) a curved shrub border.

The aim of this question was to assess the candidate's understanding of the methods and processes of setting out features accurately from scale drawings. Generally the first part of the question was answered well with most candidates stating a builder's square and adaptations of 345 triangles as suitable methods. However in some cases it was not always clear as to the actual procedures employed in the setting out. A few answers correctly described how to set out a right angle by bisecting a line with equal arcs but none explained the use of either optical squares or electronic devices.

Most candidates could quote the methods of triangulation or offsets taken from a baseline to locate the features but did not give sufficient information as to the location of the baseline or how it may be established. The method and equipment used for actually marking out the feature on the ground, as asked for in the question, was also often omitted.

- Q2**
- a) State **SIX** measures that may be taken to maintain the biosecurity of the soil on a site.
 - b) Identify the hazards associated with using earth-moving machinery to excavate and contour soil.

The aim of this question was to assess the candidate's knowledge of the properties of soil and the safe handling and storage of it on site. This question also required some explanation of more general site management procedures relative to soil handling hygiene.

Most answers quoted standard soil handling and storage techniques employed to maintain soil quality in general but often failed to relate them to specific bio-security issues. Many answers included some hygiene measures, such as washing vehicle wheels, but few candidates mentioned other site hygiene issues such as controlling the importation, handling and disposal of plant material. Some measures were somewhat extreme, such as sterilising the excavators or the entire soil stock on a site. Few answers quoted legislative measures or appropriate certification controls of imported soils.

Possible answers to the second part of the question included explanations of the hazards involved in the following soil handling operations: moving machinery (striking, trapping/crushing body parts), open excavations, working on slopes, fuel (petrol/diesel), noise, working in slippery conditions. This part of the question was not generally well answered, with many candidates misunderstanding the term "hazard". Many answers listed the consequences to the quality of the soil due to poor soil handling or gave examples of precautions that should be put in place to lower the risk of injury without actually quoting the hazards.

- Q3**
- a) State what is meant by 'permeable' paving.
 - b) Describe **TWO** surface materials suitable for a permeable hard-standing area in a domestic front garden.
 - c) Specify the appropriate foundations for **ONE** of the permeable hard-standing surface materials stated in b).

The aim of this question was to assess the candidate's knowledge and understanding of specific paving types, materials and construction techniques.

Most candidates could define permeable paving as a concept with better answers stating that it allows rainwater to pass through over its entire surface area, either through the material itself or the gaps between the units, for collection (harvesting) or dispersal within the foundation/sub-grade.

The two materials most widely quoted were porous aggregates (i.e. shingle or gravel) and specialised block paving. However many answers did not describe in enough detail as to how the materials were designed or constructed to be permeable. The majority of those answers which specified block paving only described standard block paving which is not porous. Also some answers described surfaces which may be permeable but would not be suitable as hard-standing, such as flagstones or crazy paving laid on sand with wide soil or planted gaps.

The understanding of foundations specifically for permeable paving was generally poor with most answers in particular specifying unsuitable, non-porous, sub-base materials. Most answers included just standard non-permeable paving specifications. Very few answers indicated how the drained water is dealt with, either for harvesting or dispersal, which would need to be included in the foundation specifications. Many candidates wasted time in specifying details of the bedding and wearing courses when only foundations were asked for in the question.

- Q4**
- a) Specify the foundations for a flight of three steps constructed from **NAMED** materials.
 - b) State **FIVE** safety features that should be included in the construction details of a flight of steps.

The aim of this question was to assess the candidate's knowledge of safe step construction in a garden situation.

The majority of candidates were able to name suitable materials to construct a short flight of steps and went on to describe the foundations with a diagram. Although only the foundations were asked for, it was necessary in this case to show the actual steps to demonstrate how all the components fitted together, and how the foundations provided adequate support of the entire flight. Marks were awarded for indication of sub-grade and formation levels, appropriate foundation materials, e.g. concrete, and its description, all with suitable depths and dimensions. Often the diagrams were not clear enough, especially in showing how the steps would actually be constructed on the foundations. Some diagrams only showed one step when three were asked for in the question.

The second part of the question was generally well answered with candidates quoting variations of the following: non-slip surfaces, fall to shed rainwater, clearly visible nosings, appropriate pitch, equal and appropriate dimensions throughout, handrail provision, adequate lighting. There was some confusion as to why a landing should be included in a flight of steps and how often they should occur.

Q5 Draw a labelled cross-sectional diagram to show the construction details of a retaining wall using **NAMED** materials and including:

- i) appropriate foundations;
- ii) **TWO** methods of providing drainage from the area behind the wall.

The aim of this question was to assess the candidate's knowledge of wall construction materials and methods.

Marks were awarded for a clear drawing showing components relevant to the named materials selected to include: appropriate foundation design and materials, materials for the wall with construction details (i.e. bond), reinforcement techniques, DPC provision (horizontal and vertical tanking), coping, other suitable details as required (i.e. batter for dry stone walls), all with dimensions throughout. Suitable drainage techniques included: drainage provision behind wall (perforated pipe) and through wall (pipes or weep-holes). This question was answered well by many candidates, picking up most of the above points. This was however let down in many cases by poor drawings which did not show enough detail or were confused.

- Q6**
- a) Specify **TWO** methods of construction for a formal raised pond.
 - b) Describe the procedure for constructing the pond using **ONE** of the methods in a).

The aim of this question is to assess the candidate's knowledge of pond construction materials and methods.

Methods of construction could include:

- masonry (brick, stone, concrete block) with rendered interior,
- masonry (brick, stone, concrete block) with butyl liner (possibly sandwiched between two skins),
- cast in situ concrete,
- preformed shell suitably clad on outside.

Most candidates were able to identify and quote variations of the above methods although some misread the question, taking it to be a sunk pond and so failed to describe the outside cladding required for a raised pond.

Dependant on materials and methods, selected marks were awarded in part b) for descriptions of: ground preparation and excavation to a suitable depth, foundation / floor construction, wall construction with specifications and dimensions, waterproofing technique, coping. Better answers included a clear cross section drawing, but specifications and dimensions were often vague or omitted completely, especially as to overall depth of the pond.

Q7 Review methods of constructing a rock garden to achieve a natural appearance.

The aim of this question was to assess the candidate's knowledge of rock garden construction.

Marks were awarded for explanations including: using local stone where possible (unity with surrounding landscape), appropriate contouring of slope(s) to fit surroundings, identifying appropriate front and top faces of the rocks, making them appear to be connected underground, stones touching and placing adjacent stones so that the join appears to match, varying terraces / stone sizes and heights to avoid wall or "necklace" effects, sloping all strata same way with faces parallel, matching chippings, use of outliers and/or "alpine" features to blend with surroundings.

Many candidates missed the point of the question and described the selection of a suitable location and physical construction of a rock garden, hence spending too much time on this rather than concentrating on describing how a natural appearance is achieved.

- Q8** a) State **THREE** materials suitable for edging an aggregate driveway in a domestic garden.
- b) Describe the installation procedure for **ONE** of the materials stated in a).

The aim of this question was to assess the candidate's knowledge of path and driveway materials and specifications, and their understanding of appropriate construction methods.

Materials could have included correctly specified variations of timber, brick, natural stone, PC concrete units or in-situ concrete. Better answers included more detailed specifications of the chosen materials and were awarded higher marks. For instance "wood" or "stone" on their own would not adequately identify their suitability as an edging for a driveway.

Marks in part b) were awarded as to the material chosen and included: excavation and ground preparation, marking out and method of ensuring line and level, suitable foundations, material specifications, dimensions, method of securing and methods to prevent lateral spread. Again a diagram was usually included in the answer but was often too small or too rough to help much in the clarification of the specifications. In many cases the specification and dimensions of the actual edge was omitted so it was sometimes difficult to entirely ascertain if an appropriate and adequate installation procedure was described.

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