



# RHS Qualifications

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**Examination:** RHS Level 2  
**Unit:** Unit 1  
**Examination date:** February 24

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## General Introductory Comments

Examiners' Comments are produced by RHS Qualifications following each examination series. These Examiners' comments are intended to help candidates and centres to develop an understanding of the requirements of the RHS Level 2 examinations. This is achieved through a review of candidate responses indicating key areas of strength, while also considering areas where candidates demonstrated a weaker understanding of Topic areas, or where there was evidence of gaps in their knowledge.

Candidates who scored high marks in this Level 2 examination:

- demonstrated a high level of knowledge and understanding of facts (AO1)
- could apply information and ideas (AO2)
- could discuss, and address straightforward problems (AO2)
- could demonstrate holistic/integrated knowledge of the 4 Qualification-wide outcomes and the 4 Topic areas considered in Unit 1.

## Overview of Examination

### Levels of demand

Questions were set at three levels of demand within this paper.

Questions that require a recall of basic factual knowledge are classified as being **low demand**.

Questions that require the recall of more technical concepts or the application of knowledge are classified as **medium demand**.

Questions that require the recall of advanced technical concepts, the application of these concepts and the integration of these concepts across topics are classified as **high demand**.

### General comments

An analysis of scripts has indicated that strong candidate responses shared many common characteristics:

- planned out their time for Section A, B, and C
- provided concise, well developed responses
- correctly used appropriate technical horticultural terminology
- gave full scientific names, when providing plant examples
- gave the appropriate number of responses, e.g. name two...
- successfully applied knowledge to new scenarios and situations
- evidenced planning of responses in long form answers
- integrated their long form responses into a number of relevant Topics, and Qualification-wide outcomes
- Provided responses that were logical, developing coherent arguments.

An analysis of scripts has indicated that weaker candidate responses also shared many common characteristics:

- there was little evidence of time management for Section A, B, and C
- responses often related to candidates focusing on one key term in the question, and then writing as much as possible on this part of the question
- incorrect, or little use of horticultural terminology
- stated common, or incorrect names, when providing plant examples
- did not provide the required number of responses, providing either fewer responses or a greater number of responses than the requirement of the question.
- were unable to apply key areas of knowledge
- provided partial responses in long form answers
- did not integrate their long form responses into relevant Topics, and Qualification-wide outcomes.

## Qualification specification and Guidance Document

Centres and candidates are reminded that the Qualification Specification follows current best practice. The Assessment Outcomes are written at AO1, AO2 and AO3, with broad descriptors.

The Guidance Document was developed to provide guidance with regards to the interpretation of these Assessment Outcomes in terms of breadth and depth that is appropriate to a Level 2 qualification.

It should be noted that the Guidance Document is not intended to be a comprehensive guide to teaching and learning. Instead, it is designed to provide examples of some of the key areas contained within an Assessment Outcome. As an example, where an Assessment Outcome in the Qualification Specification formally lists five areas that should be included, the Guidance Document may only unpack one of these areas as an example. The centre is then expected to apply the level of breadth and depth given in the exemplar to the other areas defined in the Assessment Outcome.

Questions may therefore be set on areas that are not explicitly stated in the guidance document. All questions set fully reflect the aims of the Assessment Outcomes, and the examples of breadth and depth given within the guidance document.

The next full review of the Guidance Document will be published for the teaching year commencing September 2024.

## **Section A**

Questions 1 – 20

### **General comments on Section A**

Forced answer questions are designed to test candidate's knowledge and understanding of the concepts covered in the 4 Topics and the 4 Qualification-wide outcomes that make up this unit.

This section was well attempted by the majority of candidates, and it was clear from annotations on the examination papers that many candidates were using good examination technique, discounting distractors, to end up with the correct answer to the question.

## Section B

Each question is considered separately.

### Question 1

Part a) of this question related to the historic use of peat in horticulture.

Candidates were required to state how horticultural characteristics of peat that made it suitable as a growing media.

Strong candidate responses correctly stated that:

- peat has a high Air Filled Porosity (AFP)
- peat has a high water holding capacity
- peat is horticulturally sterile.

Weaker candidate responses contained incorrect information, which included:

- peat is high in nutrients.

Part b) of this question required candidates to state three reasons why peat is being banned as a constituent in growing media.

Strong candidate responses correctly stated that:

- the use of peat is unsustainable, as it forms very slowly (at a rate of 1mm per year)
- the extraction of peat damages important ecosystems
- the extraction and use of peat releases carbon, which contributes to climate change.

Weaker candidate responses gave partial or incorrect responses, which included:

- peat is unsustainable.

For clarity, the above answer did not explain why peat is considered to be unsustainable, and so was not credited with a mark as it was lacking in the technical knowledge/detail required at Level 2.

## Question 2

This question required candidates to apply their knowledge of soils to new scenarios and situations, which is consistent with the requirements of Level 2 qualifications. While some candidates scored high marks with this question, many candidates scored lower marks in this question.

Candidates were required to demonstrate their knowledge, relating to the role of organic matter in making soils more resilient to climate change. An example response was provided to guide candidates on the expected depth and breadth of response required.

Strong candidate responses correctly stated that:

- a strong crumb structure in the soil will be more resilient to high levels of rainfall, which are increasing as the climate changes
- strong crumb structures lead to reduced capping after major rainfall events
- strong crumb structures are more resistant to water erosion, or damage during flooding
- strong crumb structures allow ease of access for roots, the presence of which increases the soil's resilience to erosion.

Weaker candidates gave partial responses which correctly stated the role of organic matter in the soil, but which did not apply this knowledge to the role of organic matter in making soils more climate resilient.

Weaker responses provided answers that shared knowledge that was not requested as part of the question, for example the role of organic matter in nutrient availability. Other weaker responses discussed aspects of soil management from a plant growth perspective.

The second part of this question required candidates to explain how the role of soil organic matter enhances water absorption and retention making soil climate resilient.

Strong candidate responses correctly stated that:

- strong crumb structures increase the quantity of mesopores in the soil, which hold water against drainage, increasing available water to the plant during times of drought
- soil organisms require retained water, a healthy population of such organisms will improve the soil structure, making the soil more climate resilient
- soils with strong structures are able to absorb water after periods of drought reducing run off, which causes erosion, making the soil more climate resilient.

Weaker candidate responses latched onto key phrases in the question and shared knowledge relating to these key phrases, for example organic matter, but did not produce responses that related to making soil more climate resilient, which the question required.

### Question 3

This question required candidates to demonstrate their knowledge of plant nutrition, with specific reference to the role that the major plant nutrients, Nitrogen, Phosphorus and Potassium have on plant health.

Strong candidate responses clearly stated the role of Nitrogen, Phosphorus, and Potassium in promoting plant health.

Stronger candidate responses included:

- Nitrogen promotes plant health, as it is a constituent of chlorophyll, which enables photosynthesis, and creates carbohydrate which is used in plant health processes
- Phosphorus promotes plant health by enabling the healing of damaged tissue
- Potassium promotes plant health, as it is involved in the promotion of cold hardiness reducing the damage caused by frost, which impacts on plant health.

Weaker candidate responses often stated the role of Nitrogen, Phosphorus, and Potassium but did not relate their responses to plant health. This was required in the stem of the question, and demonstrates the importance of good examination technique, in responding to the requirement of the question.

Weaker candidate responses included:

- Nitrogen creates leafy growth
- Potassium makes flowers and fruit.

This question also required candidates to describe symptoms of deficiency for Nitrogen, Phosphorus, and Potassium.

Strong candidate responses clearly stated deficiency symptoms using the appropriate technical language consistent with Level 2.

Strong responses included:

- Chlorosis of older leaves for Nitrogen
- Marginal leaf scorch for Potassium.

Weaker responses included:

- Yellow(ing) leaves for Nitrogen, Phosphorus and Potassium
- Brown leaves for Nitrogen, Phosphorus and Potassium.

#### Question 4

This question required candidates to apply their knowledge of the Qualification-wide outcome, Best Practice.

Part a) required candidates to name two organisations that either conduct trials, or carry out horticultural research and development.

Strong candidates named appropriate organisations, these included:

- Royal Horticultural Society
- Gardening Which?
- Kew Science, Kew Gardens, or Kew
- Stockbridge Technology Centre
- Agriculture and Horticulture Development Board.

The second part of the question required candidates to state a horticultural operation and then provide an example of best practice.

Strong candidate responses included:

- staking of trees, with the adoption of low staking at 45 degrees, to allow trees to naturally flex and produce stronger trunks
- the changing of tree planting practices to reduce soil disturbance, and so reduce the incidence of trees sinking, which negatively impacts on plant health
- the planting of spring bulbs in lawns, where AGM trial results are used in plant selection.

Weaker candidate responses included:

- making generic comments relating to horticultural practice, for example, using the right tool for the job
- the naming of an RHS Garden as a horticultural operation
- the naming of 'garden centre' as a horticultural operation.



## Question 5

This question required candidates to explain the term F<sub>1</sub> Hybrid.

Strong candidates were able to correctly explain the term F<sub>1</sub> Hybrid by stating that an F<sub>1</sub> Hybrid is produced through the cross fertilisation of two pure bred plants to produce seeds, which are referred to as the first filial generation.

Weaker candidate responses often stated that the plants were hybrids, but did not express the required level of technical detail to be awarded 2 marks.

The second part of this question required candidates to state two advantages of using F<sub>1</sub> Hybrids.

Strong candidates were able to state advantages, such as:

- all plants are uniform
- good or high yields
- hybrid vigour/strong vigorous plants
- improved disease resistance.

Weaker candidate responses often stated less specific advantages, that did not necessarily relate to F<sub>1</sub> Hybrids, such as:

- good plants
- strong plants
- same colour of flower.

The third part of this question required candidates to state two disadvantages of using F<sub>1</sub> Hybrids.

Strong candidates were able to state disadvantages, such as:

- do not produce seed that is true to type
- lack of genetic diversity
- labour intensive breeding programmes lead to higher costs
- plants may be sterile.

Weaker candidate responses often stated less specific disadvantages:

- cost (with no indication of whether this is a higher or lower cost, or why cost is a factor).

## Question 6

This question required candidates to name two types of vascular tissue found in plants.

The majority of candidate answers correctly stated Xylem and Phloem as the two types of vascular tissue found in plants. Some weaker candidate responses stated roots and shoots as types of vascular tissue, which was incorrect.

Candidates were then asked to describe the function of one of these tissues.

Strong candidate responses included:

- Xylem, carries water and soluble nutrients up the plant
- Phloem, carries dissolved sugars to areas of active growth in the plant.

Weaker candidate responses included:

- Xylem, moving water, with no indication of direction of the movement of water, or reference to the movement of dissolved nutrients
- Phloem, carries food.

Candidates were then asked how the cells of the named tissue are adapted to perform this function.

Strong candidate responses included:

- Xylem, hollow tube-like cells
- Phloem, cells have sieve plates
- Phloem, cells have companion cells.

Weaker candidate responses often included incorrect or partial information including:

- Xylem, long tubes
- Phloem, long tubes

Candidates were then asked to discuss how the structure of Xylem and Phloem differ, with strong candidates stating for example, that Phloem has companion cells to help to provide energy for movement of solutes, or that Xylem cells are long, thin, hollow and lignified without end walls.

The final part of this question required candidates to state how the structure of a named vascular tissue aids plant growth and development.

Strong candidate responses included:

- Xylem delivers water to maintain cell turgidity
- Xylem delivers water for photosynthesis
- Xylem delivers soluble nutrients used in photosynthesis
- Phloem delivers sugars to areas of active growth
- Phloem moves sugars to storage organs.

## Question 7

This question required candidates to explain the term microclimate.

Stronger candidates were able to correctly state that a microclimate is a specific area within a garden that has a different climate, or that small areas of garden can have different climates, hot and dry, as opposed to shady and damp, and this can influence what plants can be grown in each of these areas.

Weaker candidate responses were less precise, stating for example that a microclimate is an area with a different climate. Responses such as these lacked the required level of technical detail for Level 2.

Candidates were then required to state three external factors that can influence the creation of microclimates in gardens.

Strong candidates stated the external factor clearly, for example slope, aspect, exposure, before discussing the influence that these external factors can have on the microclimate of a garden.

Weaker candidate responses often failed to state the external factor, but described an influence, which reduced the marks that could be awarded.

The third part of the question required candidates to explain how provenance of plants sourced could affect their successful establishment.

Stronger candidates were able to relate the concept of provenance to specific aspects of microclimates, for example discussing how the selection of a specific plant species from a hot sunny location, or a cooler shady location could enhance establishment in a microclimate.

The majority of candidates gave weak or incorrect answers which demonstrated gaps in knowledge relating to plant provenance. Other candidates explained provenance, which was already explained in the stem of the question.

## Section C

Section C candidate responses are graded against the assessment ladder, which is on the next page of this report. Candidates and centres are advised to review the ladder as this indicates how the assessment decisions are made, when grading long form responses.

Candidate performance in Section C ranges from those candidates who:

- were prepared to produce long form responses
- carefully planned their answers, including key points
- approached the question logically
- shared horticultural knowledge that was technically correct and to the required depth of knowledge for Level 2
- demonstrated a full and holistic knowledge of the topic areas and Qualification-wide outcomes.

through to candidates who:

- produced very short responses which did not provide the required level of depth and breadth
- provided responses which were unplanned and unstructured
- provided responses that gave a framework, but which did not provide the required level of detail
- picked up on certain words in the question, and wrote all they knew about these words, rather than answering the question.

In addition to the assessment ladder, candidate responses are also reviewed against the criteria set out below:

### **Indicative content**

- Strength of response
- Integration
- Horticultural knowledge.

### **Strength of response:**

Strong candidate responses:

- developed a logical argument to answer the question
- drew on reliable information sources
- were relevant to the question
- expressed clarity of thought
- demonstrated knowledge of horticultural practices.

### **Integration:**

Candidate responses should integrate with other relevant areas of the syllabus.

## Assessment ladder (for information)

Band	Mark range	Summary	Description
4	12 - 15	Fully developed (Total)	<p><b>A highly detailed, comprehensive, fully relevant response, addressing all aspects of the question</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> No irrelevant or incorrect material or observations at the top end of the mark range: otherwise only very minor errors/omissions (which do not detract from an otherwise strong response)</li> <li><input type="checkbox"/> Full integration/clear links demonstrated with other appropriate topics as required: a holistic approach</li> <li><input type="checkbox"/> Advanced current professional horticultural knowledge/principles demonstrated (and evidence of advanced material beyond the specification at the top end of mark range)</li> <li><input type="checkbox"/> Consistent use of correct and appropriate technical language.</li> </ul>
3	9 - 11	Mainly developed (Solid)	<p><b>A reasonably detailed and fairly comprehensive response, with mostly relevant observations, addressing most of the key elements of the question</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Some minor evidence of irrelevant or incorrect material or observations (in what is otherwise a good response), with occasional lack of detail/omissions at times</li> <li><input type="checkbox"/> Secure evidence of some appropriate integration with other topics but some linked topic areas are occasionally overlooked or incorrect associations are made: a partially holistic approach</li> <li><input type="checkbox"/> Current professional horticultural knowledge/principles demonstrated most of the time, with occasional errors, but largely appropriate explanations and application</li> <li><input type="checkbox"/> Correct and appropriate technical language demonstrated most of the time, with some minor errors.</li> </ul>
2	6 - 8	Rudimentary (Basic)	<p><b>A largely basic response with some relevant observations, addressing some key elements of the question</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Some significant evidence of irrelevant or incorrect material and frequent lack of detail, with some key areas overlooked</li> <li><input type="checkbox"/> Occasional evidence of correct integration with other topics, but many areas are overlooked and incorrect associations made: little evidence of a holistic approach</li> <li><input type="checkbox"/> Current professional horticultural knowledge/principles demonstrated some of the time, but with frequent errors, and only basic explanations or application</li> <li><input type="checkbox"/> Correct and appropriate technical language only partially demonstrated but limited. Some key errors.</li> </ul>
1	0 - 5	Undeveloped (Unsatisfactory)	<p><b>A largely poor response with few relevant observations, addressing few of the key elements of the question</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Material is largely irrelevant or incorrect and lacking in any detail, with many key areas overlooked</li> <li><input type="checkbox"/> No, or very little evidence of correct integration with other topics, with many areas overlooked and incorrect associations made: no evidence of a holistic approach</li> <li><input type="checkbox"/> No or little evidence of current professional horticultural knowledge/principles demonstrated, with poor or incorrect explanations or application</li> <li><input type="checkbox"/> Little (if any) technical language demonstrated. Often incorrect. Key errors.</li> </ul>

## Question 1

This question required candidates to respond to a scenario where a friend wishes to re-landscape their garden, using a range of ericaceous plants, in a soil that has recently tested as being pH 7.5.

Candidates were specifically asked to discuss the range of options available and discuss sustainability principles.

Candidates who scored marks in the higher bands:

- considered the range of options available, to include amending the plant selections to suit the site, applying the principles of 'right plant, right place', with the alternative strategy of amending the soil pH.
- discussed impacts on plant health of incorrect plant selection
- stated the ecosystem damage that can be caused by changing soil pH
- discussed the use of non-renewable and renewable resources to amend soil pH
- used scientific plant names, when suggesting plant examples
- discussed how best practice relating to soil amelioration or plant selection could be applied.

Candidates who scored marks in the lower bands:

- confused the pH ranges for acidity and alkalinity, which resulted in incorrect suggestions relating to soil amelioration
- did not make reference to the concept of 'right plant, right place'
- tended to use common names, or not provide named plant examples
- made no reference to sustainability.

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## Question 2

This question required candidates to explain how weed growth can, both positively and negatively impact on plant health in a named garden situation.

Candidates who scored marks in the higher bands:

- developed structured and logical responses
- named a specific garden situation which was appropriate to their response, productive growing settings were popular and appropriate, as were ornamental borders, and orchards
- provided balanced responses which discussed the positive impacts of weed growth, before moving on to consider negative impacts
- considered the plant health impacts of weed growth
- considered weed growth through consideration of areas including:
  - Soil fertility
  - Plant health
  - Green manures
  - Cover crops
  - Impacts on biodiversity
- made reference to published works
- made reference to emerging best practice
- used scientific plant names.

Candidates who scored marks in the lower bands:

- provided unstructured responses, which were unbalanced
- did not name the garden situation
- created a basic structure with key points, but did not offer any development of these points
- did not make reference to best practice
- provided few named examples, often using common names
- did not make reference to plant health.

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### Question 3

This question used the practice of tree and shrub planting to assess the candidate's knowledge of Best Practice.

Candidates who scored marks in the higher bands:

- provided clear explanations of current best practice relating to the planting of trees and shrubs
- provided a clear framework for their response, discussing each of the key areas:
  - shape of the hole
  - elimination of the use of organic matter
  - elimination of the use of fertiliser
  - minimal soil disturbance
  - limited amelioration
  - depth of planting
  - root contact with the soil
  - staking techniques
  - mulching
  - water management
- correctly stated the key principles behind the practice of tree and shrub planting.

Candidates who scored marks in the lower bands:

- often provided a framework within their responses but failed to develop basic points to demonstrate depth and breadth of knowledge
- gave incomplete responses, for example stating 'square hole' without context or explanation
- gave tangential information relating to plant selection, delivery procedures, and plant quarantine procedures, rather than focusing on planting practices
- omitted key elements of the planting process, for example the application of water.

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#### Question 4

This question required candidates to describe the process of transpiration in plants, and then to suggest a range of factors that can influence the process of transpiration. Finally, candidates were asked to describe how these factors can be mitigated in a garden situation.

Candidates who scored marks in the higher bands:

- accurately described the process of transpiration
- suggested a wide range of factors that can influence the process of transpiration:
  - sun
  - shade
  - wind
  - water availability
  - relative humidity
  - plant nutrition
  - health status
  - temperature
  - leaf biology
- suggested, with reference to best practice, how the above factors can be managed and controlled within a garden. For example, the management of relative humidity through pruning and plant spacings.

Candidates who scored marks in the lower bands:

- wrote generally about water uptake within the plant, rather than tailoring their answer to transpiration
- provided a framework of factors within their responses but failed to offer any further explanation to demonstrate depth and breadth of knowledge.