



RHS LEVEL 3 DIPLOMA IN HORTICULTURE JULY 2011

PRACTICAL EXAMINATION – MODULE H

PAPER 1

IMPORTANT: Please read carefully before commencing.

- i) Duration of this paper is **3 hours**.
- ii) **ALL** questions are to be attempted.
- iii) **ALL** work to be labelled with the candidate's number.
- iv) Use **METRIC** measurements **ONLY**.
- v) Use full latin names, including genus and species, for plants.

Please turn over/.....

ANSWER ALL QUESTIONS

MARKS

- Q1** From the plant material provided, select, prepare and insert **THREE** cuttings at appropriate spacing, for **EACH** of the methods listed. Select an appropriate container and a suitable rooting medium for each:

- | | | |
|------|-----------------------|---|
| i) | leaf bud cutting; | 4 |
| ii) | root cutting; | 4 |
| iii) | leaf petiole cutting; | 4 |
| iv) | leaf lamina cutting. | 4 |

Proficiency mark 4

- Q2** Using the scion wood provided, chip bud one bud on to **EACH** of the **TWO** rootstocks labelled **A**. 20

Proficiency mark 10

- Q3** Using the pro-forma provided, evaluate the following:

- | | | |
|------|------------------------|---|
| i) | seed sowing in drills; | 6 |
| ii) | turf laying; | 6 |
| iii) | tree planting; | 6 |
| iv) | planting of bedding. | 6 |

- Q4** Prune **EACH** of the plant specimens labelled **B**, **C** and **D** in order to complete the annual plant maintenance. 15
Assume that it is the appropriate time of year for this work to be carried out.

The examiner will ask you for the recommended time of the year pruning should be completed for each shrub.

Leave all the prunings on the work bench.

Proficiency mark 3

Please see over/.....

ANSWER ALL QUESTIONS

	MARKS
Q5 Using the pro-forma provided, review the ornamental shrub border indicated and answer EACH of the following: <ul style="list-style-type: none"> i) Identify and record EIGHT plants (not weeds) in the border. ii) Identify and record FOUR visual examples of plant damage caused by a NAMED pest OR disease. iii) Recommend FOUR plants, which could be added to this border to provide interest for the visitor in December. iv) State FOUR methods of reducing the maintenance time spent on this border. 	30
Q6 In discussion with the examiner, identify and review the materials displayed, together with their characteristics and usage.	20
Q7 Using the pro-forma provided: <ul style="list-style-type: none"> i) review the health and condition of the plants on the bench labelled question 7; ii) identify SIX ways of improving the quality of these plants; iii) list SIX plants using full latin names, which could be grown in this greenhouse (which has a minimum temperature of 15°C) as container plants for a Christmas display. 	6 6 6
Q8 The area indicated is to be sprayed with a total herbicide using a knapsack sprayer. Using the pro-forma provided, identify any visible hazards for the operator and/or public associated with this task.	20
	180

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**RHS LEVEL 3 DIPLOMA IN HORTICULTURE
JULY 2011**

PRACTICAL EXAMINATION – MODULE H

PAPER 2

IMPORTANT: Please read carefully before commencing.

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- iv) Use **METRIC** measurements **ONLY**.
- v) Use full latin names, including genus and species, for plants.

Please turn over/.....

ANSWER ALL QUESTIONS

	MARKS
Q9 Discuss with the examiner any TWO of the following horticultural machines: <div style="margin-left: 40px;"> i) turf strimmer; ii) cylinder mower; iii) control droplet applicator. </div>	20
Q10 On the pro-forma provided, using common names for the pest/disease/disorder and latin names for the host plant: <div style="margin-left: 40px;"> a) Identify EACH of the pests and host, diseases and host, plant and disorders numbered 1 – 15. b) State ONE suitable control strategy for EACH, from chemical (the mode of action only), cultural OR biological methods, as appropriate. </div>	30
Q11 On the pro-forma provided, identify the plant specimens numbered 16 – 40 , giving in EACH case the generic name, specific epithet (if applicable) and the cultivar OR variety name (if applicable).	50
Q12 On the pro-forma provided, identify the substances numbered 41 – 45 and state the main horticultural use of EACH .	10
Q13 On the pro-forma provided, identify the seeds and weeds numbered 46 – 55 . State in EACH case, the generic name for the seed specimens, and the generic name with specific epithet for the weed specimens.	20
Q14 Using the pro-forma provided, answer EACH of the questions for the equipment numbered 56 – 58 .	10

Please see over/.....

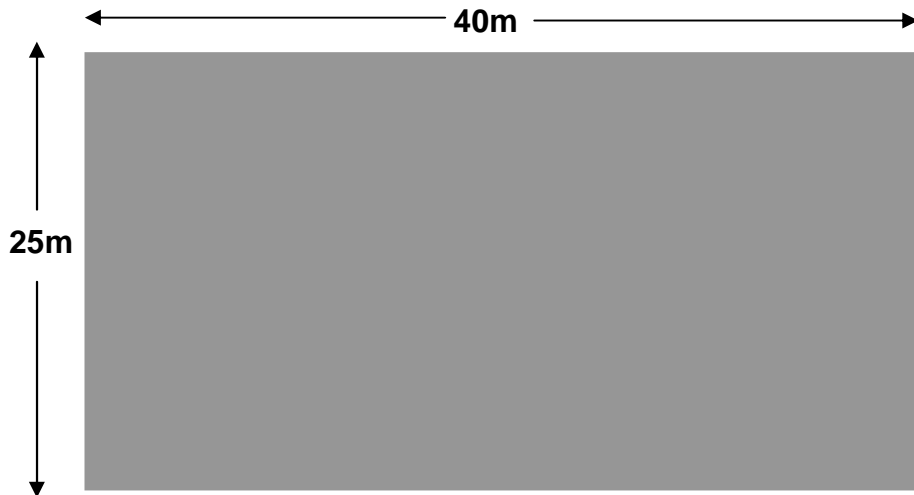
ANSWER ALL QUESTIONS

MARKS

- Q15** Using the floral key provided identify, down to genus and species, the specimen labelled **E**. Candidates must record the sequence used to identify the plant.

20

Q16



1 hectre = 10, 000m²

- a) Calculate the area shown. **2**
- b) Calculate how many 500mm x 500mm slabs will be required to be placed on the outside perimeter edge of the area. **6**
- c) Calculate the amount of nitrogen fertilizer required if 35g/m² of nitrogen nutrient is required. **6**
- d) Calculate the number of carpet plants required if planted at 250mm centres. **6**

180

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RHS LEVEL 3 DIPLOMA IN HORTICULTURE JULY 2011

PRACTICAL EXAMINATION – MODULE H

PAPER 1

Sparsholt College

IMPORTANT: Please read carefully before commencing.

- i) Duration of this paper is **3 hours**.
- ii) **ALL** questions are to be attempted.
- iii) **ALL** work to be labelled with the candidate's number.
- iv) Use **METRIC** measurements **ONLY**.

Please turn over/.....

ANSWER ALL QUESTIONS

MARKS

Q1 Prepare and insert **SIX** cuttings from **EACH** of the specimens labelled **A**, **B** and **C** at appropriate spacing, for **EACH** of the methods listed. Select an appropriate container and a suitable rooting medium for each:

- | | | |
|------|--|----------|
| i) | evergreen hardwood cutting (A); | 5 |
| ii) | softwood cutting (B); | 5 |
| iii) | semi-ripe cutting (C). | 5 |

Proficiency mark	5
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Q2 Using the scion wood provided, chip bud one bud on to **EACH** of the **TWO** rootstocks labelled **D**. **20**

Proficiency mark	10
------------------	-----------

Q3 In discussion with the examiner, evaluate the planting technique, appropriate plant selection and display arrangement for **EACH** of the **TWO** prepared containers labelled **E** and **F**. Consideration should include **EACH** of the following environmental factors:

- | | | |
|------|-----------------------------------|-----------|
| i) | temperature of 15° C; | |
| ii) | light levels of 3000 lux; | |
| iii) | relative humidity of 40% at 15°C. | 24 |

Q4 Prune **EACH** of the plant specimens labelled **G**, **H** and **I** in order to complete the annual plant maintenance. Assume that it is the appropriate time of year for this work to be carried out.

The examiner will ask you for the recommended time of the year pruning should be completed for each shrub.	15
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Leave all the prunings on the work bench.

Proficiency mark	3
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Please see over/.....

ANSWER ALL QUESTIONS

	MARKS
Q5 Using the pro-forma provided, review the landscaped area indicated and answer EACH of the following: <ul style="list-style-type: none"> i) Identify and record EIGHT plants (not weeds) in the area. ii) Identify and record FOUR visual examples of plant damage caused by a NAMED pest OR disease. iii) Recommend FOUR plants, which could be added to this border to provide interest in December. iv) State FOUR important maintenance operations for this area. 	30
Q6 Using the pro-forma provided, explain how seed treatments for EACH of the specimens labelled J, K, L, M and N , will assist with seed sowing and germination.	20
Q7 Using the pro-forma provided: <ul style="list-style-type: none"> i) Identify, using generic and specific names, the lawn grass within EACH of the circles marked O, P and Q. ii) Identify, using generic and specific names, the lawn weeds marked R, S and T. iii) State an acceptable method of cultural control for EACH of the weeds identified in ii). 	6 6 6
Q8 On the pro-forma provided, in the capacity of a professional horticulturist, carry out a risk assessment of the area indicated and identify the safe working practices for the identified risks.	20
	180

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**RHS LEVEL 3 DIPLOMA IN HORTICULTURE
JULY 2011**

PRACTICAL EXAMINATION – MODULE H

PAPER 2

Sparsholt College

IMPORTANT: Please read carefully before commencing.

- i) Duration of this paper is **3 hours**.
- ii) **ALL** questions are to be attempted.
- iii) **ALL** work to be labelled with the candidate's number.
- iv) Use **METRIC** measurements **ONLY**.

Please turn over/.....

ANSWER ALL QUESTIONS

	MARKS
<p>Q9 Discuss with the examiner the safe operation of any TWO of the following horticultural machines:</p> <p style="margin-left: 40px;">i) lawn scarifier; ii) rotary mower; iii) knapsack sprayer.</p>	20
<p>Q10 On the pro-forma provided, using common names for the pest/disease/disorder and latin names for the host plant:</p> <p>a) Identify EACH of the pests and host, diseases and host, plant and disorders numbered 1 – 15.</p> <p>b) State ONE suitable control strategy for EACH, from chemical (the mode of action only), cultural OR biological methods, as appropriate.</p>	30
<p>Q11 On the pro-forma provided, identify the plant specimens numbered 16 – 40, giving in EACH case the generic name, specific epithet (if applicable) and the cultivar OR variety name (if applicable).</p>	50
<p>Q12 On the pro-forma provided, identify the substances numbered 41 – 45 and state the main horticultural use of EACH.</p>	10
<p>Q13 On the pro-forma provided, identify the seeds and weeds numbered 46 – 55. State in EACH case, the generic name for the seed specimens, and the generic name with specific epithet for the weed specimens.</p>	20
<p>Q14 Using the pro-forma provided, answer EACH of the questions for the equipment numbered 56 – 58.</p>	10

Please see over/.....

ANSWER ALL QUESTIONS

MARKS

Q15	Using the pro-forma provided, identify ONE distinct plant adaptation for EACH of the specimens numbered 59 – 68 . State ONE advantage to the plant for EACH of the adaptations.	20
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Q16	For the oil tank labelled question 16:	
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	a) Calculate the litre capacity of the oil tank.	6
--	--	---

	b) Calculate how long the oil will last if the tank is filled to capacity and the oil usage is 72 litres per hour.	6
--	--	---

	c) The oil tank is 30% filled with oil. Calculate the cost of filling the oil tank completely (from the 30% oil already in the tank) if the price of heating oil is 42p per litre. Add 20% VAT to your answer.	8
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*****	180
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Diagram for Question 16 at Sparsholt College provided on a separate sheet.



RHS LEVEL 3 DIPLOMA IN HORTICULTURE

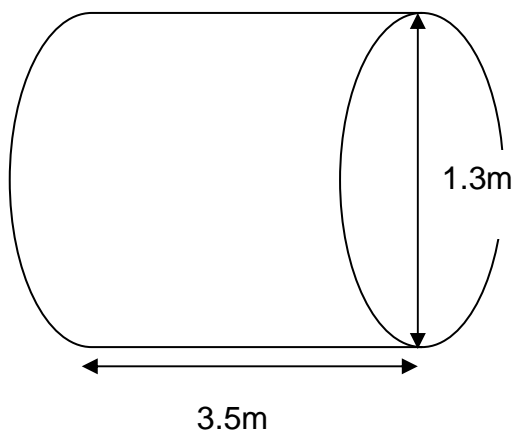
JULY 2011

PRACTICAL EXAMINATION – MODULE H

PAPER 2 (Sparsholt)

Question 16

The dimensions of the oil tank are:-



Diameter of one end of the oil tank = 1.3m

Length of the oil tank = 3.5m

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RHS Level 3 Diploma in Horticulture July 2011

Practical examination - Module H

Candidates Registered	89		Total Candidates Passed	59	76.62%
Candidates Entered	77	86.52%	Passed with Commendation	15	19.48%
Candidates Absent	5	5.62%	Passed	44	57.14%
Candidates Deferred	6	6.74%	Failed	18	23.38%
Candidates Withdrawn	1	1.12%			

Note regarding two alternate versions of Papers 1 and 2 in 2011

Two versions of the question papers were produced in 2011. This was to ensure that the integrity of the examination was maintained, adjusting some questions between centres.

Guidance notes for candidates and tutors

This examination report has been designed to support candidates and tutors preparing for the RHS Diploma Module H practical examination. The report concentrates on areas which candidates found challenging or appeared not to be fully prepared. The RHS hope that prospective candidates and tutors will find the report constructive in the preparation for the Module H practical examination.

The report contains three components.

1) The examination question is recorded with the marks allocated.

2) Specific comments.

These comments relate to:

- a) Was the task completed safely?
- b) Did the candidate use the appropriate resources efficiently?
- c) Was the method used correct and appropriate for the task?
- d) The method used relates to modern* horticultural practices
*within the last 10 years.

3) General comment.

An overall comment on the performance of candidates with each question.

Important Note

A common misconception by candidates is “we must do this the RHS way”. There is no RHS way. Examiners mark candidates work with reference to the criteria as recorded under the specific comments in this report.

Paper 1

Q1 From the plant material provided, select, prepare and insert **THREE** cuttings at appropriate spacing, for **EACH** of the methods listed. Select an appropriate container and a suitable rooting medium for each:

- | | | |
|------|-----------------------|---|
| i) | leaf bud cutting; | 4 |
| ii) | root cutting; | 4 |
| iii) | leaf petiole cutting; | 4 |
| iv) | leaf lamina cutting. | 4 |

Proficiency mark	4
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Specific comments

There was evidence of poor knife work, which resulted in poor quality cuts to the cutting material. Some confusion exists in selecting the appropriate vegetative propagation method for the plant material. It is important to ensure that leaf lamina cuttings are prepared with a large leaf vein in the centre of the cutting.

General comments

See below.

Alternate

Q1 Prepare and insert **SIX** cuttings from **EACH** of the specimens labelled **A**, **B** and **C** at appropriate spacing, for **EACH** of the methods listed. Select an appropriate container and a suitable rooting medium for each:

- | | | |
|------|--|---|
| i) | evergreen hardwood cutting (A); | 5 |
| ii) | softwood cutting (B); | 5 |
| iii) | semi-ripe cutting (C). | 5 |

Proficiency mark	5
------------------	---

Specific comments

There was a great variability in the size of the evergreen hardwood cuttings. Examiners were looking for uniformity and the lower cut to be on maturing wood and certainly not on green wood. Softwood cuttings were prepared efficiently. Some candidates however removed the terminal buds which was not necessary as no flowers were present.

General comments (All Centres)

Candidates are advised to practice using the knife and secateurs. It is important to be fully aware of health and safety issues with knives and secateurs. Many candidates left open knives and secateurs on the bench, which potentially is a serious health and safety issue. Clearly knives and secateurs must be closed when not in use.

Q2	Using the scion wood provided, chip bud one bud on to EACH of the TWO rootstocks labelled A .	20
	Proficiency mark	10

Specific comments

It is important to prepare the cuts on the stock plant as quickly as possible after producing the scion bud. Many candidates prepared several buds and then continued to prepare the cuts on the stock plant. This is bad practice as the scion wood quickly will dry, thus reducing the success rate of the union between stock and scion. The cuts to the stock plant were often too long and too deep. This resulted in poor cambium availability, which is essential for the successful union of the bud to the stock.

General comments

A common comment made by candidates was that they had only seen this process in handouts or books. It appeared that many candidates had not actually practised this important method of propagation. This method of propagation requires careful use of the knife and a full understanding of the operation. This can only be achieved by practising this task, following sufficient instruction. Candidates also need to practice the skill of securing the bud to the stock, using grafting tape. Many candidates failed to secure the bud securely, which would result in desiccation of the bud and possible pest contamination of the bud site.

Q3 Using the pro-forma provided, evaluate the following:

i)	seed sowing in drills;	6
ii)	turf laying;	6
iii)	tree planting;	6
iv)	planting of bedding.	6

Specific comments

The evaluation of the seed drills was completed efficiently by the majority of candidates. One of the seed drills however, had various depths which was not observed by the majority of candidates.

Many candidates did not record the fact that the turf was not bonded correctly and had large gaps between the turf edges. In addition the turf was cut to various sizes which was not identified by any candidate.

The evaluation of the two planted tree specimens was efficiently completed. Common errors identified in some candidates' scripts however were:

- Not recording the problems of knocking in a stake through the root ball.
- The tree ties placed the wrong way round.
- The angled staking had a very wide angle of stake, which presented a trip hazard.

The main issues to be identified with the summer bedding were as follows:
Major colour clashing with the primary colours. It is appreciated that for some

areas, colour clashing is required. The examiners would have accepted comment about the colour clashing, but this was rarely provided by candidates. The spacing of many of the bedding plants was far too close. Some plants were planted very shallow with large areas of the root ball showing. Many plants had dead flowers/dead leaves/damaged stems; very few candidates identified this problem.

General comments

The standard of writing on the pro-formas by the majority of candidates was poor. The purpose of this question was for candidates to use their eyes and record concisely the issues with the horticultural examples. Many other comments were very general and lacked the detail required at this level. Examples of poor comments which were not really measurable, were as follows:

'The trees look nice'. 'The bedding has a nice feel'. 'The turf is fine, no major issues'.

It is expected at this level that the candidate's comments could be used to provide constructive feedback to the person who had physically provided the horticultural areas.

Alternate

Q3 In discussion with the examiner, evaluate the planting technique, appropriate plant selection and display arrangement for **EACH** of the **TWO** prepared containers labelled **E** and **F**. Consideration should include **EACH** of the following environmental factors:

- i) temperature of 15° C;
- ii) light levels of 3000 lux;
- iii) relative humidity of 40% at 15°C.

24

Specific comments

This question concentrated on the presentation of two planted containers, which would be used in a specified environment as detailed in the question.

It was noted by the examiner that there was a lack of knowledge on the effects of relative humidity to plants. Many of the plant examples were inappropriate for the relative humidity stated in the question.

The plant selection and design of the containers should have provided much discussion with the examiner. The key issues to discuss were: The selection of plants, the planted design, the quality of the plants, the standard of planting and the compost used in the container.

General comments

It is important that candidates are able to relate plant selection to the environmental conditions specified. Many candidates did not recognise plant material which was totally unsuitable for the specified environmental conditions. In addition, it is important that candidates carefully examine the container. Only three candidates observed that one container was very dirty on the outside.

- Q4** Prune **EACH** of the plant specimens labelled **B**, **C** and **D** in order to complete the annual plant maintenance. **15**
Assume that it is the appropriate time of year for this work to be carried out.

The examiner will ask you for the recommended time of the year pruning should be completed for each shrub.

Leave all the prunings on the work bench.

Proficiency mark **3**

Specific comments

The pruning of common garden shrubs was extremely variable. The plants had been prepared for the examination and represented typical growth for the time of annual pruning. It was disappointing to observe a lack of pruning knowledge by many candidates.

It is fully accepted that there are different methods of pruning plants. An example is *Cornus alba* which can be pruned down to 2 to 3 buds in March, or half the growth is pruned down to 2 to 3 buds in March. Many candidates pruned the *Cornus* by removing the terminal buds only. It appeared that many candidates could not identify the shrubs, which were: *Cornus*, *Forsythia* and *Ribes*.

General comments

It is expected at this level that candidates should have the confidence to prune common garden shrubs, which require annual maintenance pruning. This question should have taken no longer than 15 minutes (there were only three shrubs to prune). Many candidates spent over 40 minutes on this question, which implies they were not prepared for the question.

- Q5** Using the pro-forma provided, review the ornamental shrub border indicated and answer **EACH** of the following:
- i) Identify and record **EIGHT** plants (not weeds) in the border.
 - ii) Identify and record **FOUR** visual examples of plant damage caused by a **NAMED** pest **OR** disease.
 - iii) Recommend **FOUR** plants, which could be added to this border to provide interest for the visitor in December.
 - iv) State **FOUR** methods of reducing the maintenance time spent on this border.
- 30**

Alternate

- Q5** Using the pro-forma provided, review the landscaped area indicated and answer **EACH** of the following:

- i) Identify and record **EIGHT** plants (not weeds) in the area.
- ii) Identify and record **FOUR** visual examples of plant damage caused by a **NAMED** pest **OR** disease.
- iii) Recommend **FOUR** plants, which could be added to this border to provide interest in December.
- iv) State **FOUR** important maintenance operations for this area.

30

Specific comments

A common problem with candidates' answers was the poor identification of the plants. Many candidates only identified 50% of the plants in the border correctly. The maintenance section of the question was very poorly answered, with candidates providing some very general answers. It is expected that candidates should clearly identify maintenance tasks. An example (which was commonly observed in candidates' answers) was: 'Give the plants a good prune and feed them when necessary'. The examiner clearly wants to know, what type of pruning, when should the pruning take place, what type of fertiliser should be applied and when/how should it be applied.

General comments

An evaluation of a horticultural area requires a trained eye to observe any issues. It is clear that many candidates have not received adequate training in this important area of the syllabus. It also requires accurate reporting of the issues. The report of the area should be concise, accurate and readable. The examiner marking many of the scripts had great difficulty in deciphering very poor handwriting.

- Q6** In discussion with the examiner, identify and review the materials displayed, together with their characteristics and usage.

20

Specific comments

Many candidates had difficulty with this question which involved the accurate identification of a range of common growing media and media ingredients. The main issue identified was a lack of technical information about the media ingredients.

The examiner was looking for important criteria to be identified such as pH, air filled porosity, uniformity, availability, toxicity, major advantage to the horticulturist.

Many candidates did not identify the soil and did not know why soil could be added to growing media used in nursery stock.

General comments

It is strongly recommended that all candidates attempting this examination must

identify the main composts used in horticulture to include the main physical ingredients. It is important to note that the examiners are looking for technical specifications, which gave advantage to the plant or to the horticulturist. Many candidates appeared not know that using a clay loam as a medium for hanging baskets could result in very heavy baskets. These heavy baskets could present a health and safety issue owing to the increased weight of moist soil in the basket.

Alternate

- Q6** Using the pro-forma provided, explain how seed treatments for **EACH** of the specimens labelled **J, K, L, M** and **N**, will assist with seed sowing and germination. **20**

Specific comments

The purpose of this question was to relate the theoretical knowledge of seed treatments to the practical methods used by the horticulturist. It is important that candidates should be able to identify the type of fruit and be able to treat the fruit appropriately in order to access the seed successfully.

Some very good answers were observed in the pro-formas from candidates who clearly had revised the subject. It was disappointing however, to observe very general answers by many candidates who clearly did not know how to manage the fruit in order to access the seed.

In addition almost all candidates failed to recognise the Magnolia seed pod. It is important to sow Magnolia seed as soon as they are ripe, which is normally in October.

There was evidence of confusion between the terms maceration, stratification and dormancy in many candidate answers.

General comments

It is expected that a candidate at this level should be able to identify the main groups of fruit and to be able to plan for the successful extraction of the seed. It is recommended that candidates observe the different types of fruit and if possible practice the extraction of seed from different fruit types.

- Q7** Using the pro-forma provided:

- | | | |
|------|---|----------|
| i) | review the health and condition of the plants on the bench labelled question 7; | 6 |
| ii) | identify SIX ways of improving the quality of these plants; | 6 |
| iii) | list SIX plants using full latin names, which could be grown in this greenhouse (which has a minimum temperature of 15°C) as container plants for a Christmas display. | 6 |

Specific comments

This question related to the evaluation of houseplants located on a bench, under glass with specified environment conditions. The plants were carefully selected

to have individual problems, which should have been identified by the candidate. Candidates' responses were very general and lacked the detail necessary to complete a successful evaluation.

Comments which were not very helpful included: 'Pot the plants up, in the correct compost'. 'Check for pests and diseases and treat appropriately'. These comments are very general and lacked the detail required at this level of examination.

A very disappointing section of the question was the selection of plants for a Christmas display. Many of the answers were totally inappropriate for the environmental conditions and would not have provided an interesting display for the specified period.

General comments

The examiner marking this question experienced great difficulty in reading many of the candidates' handwriting.

It is very important to provide answers which relate to the plants and are recorded in enough detail for someone to act upon the guidance notes. Very general comments as recorded above are not helpful and did not receive any marks.

The Christmas period is a major market opportunity for the horticultural industry. It was expected that candidates would have some knowledge of suitable plants for this period. Candidates' responses indicate poor knowledge of display plants for the Christmas period.

Alternate

Q7 Using the pro-forma provided:

- | | | |
|------|--|----------|
| i) | Identify, using generic and specific names, the lawn grass within EACH of the circles marked O , P and Q . | 6 |
| ii) | Identify, using generic and specific names, the lawn weeds marked R , S and T . | 6 |
| iii) | State an acceptable method of cultural control for EACH of the weeds identified in ii). | 6 |

Specific comments

This question which related to the correct identification of sward grasses and broad leaved weeds, was answered correctly by the majority of candidates. The identification of broad leaved weeds was mainly correct, which was pleasing to observe. Many candidates however experienced difficulty in identifying the Poa specimen in the grass.

Many candidates did not read the question carefully and provided chemical control for the control of the broad leaved weeds. The question clearly requested cultural control methods. Candidates who provided detailed information on culture control for the broad leaved weeds gained higher marks.

General comments

Many candidates rushed this question and did not appear to spend much time on the identification of the grasses. Comments received from candidates imply that

they had not spent much time identifying turf grasses as this was considered by candidates a difficult subject area.

The identification of grasses is very straightforward and with good tuition should not present any difficulty for candidates at this level. This examination question was only asking for the identification of three commonly used turf grasses.

- Q8** The area indicated is to be sprayed with a total herbicide using a knapsack sprayer. Using the pro-forma provided, identify any visible hazards for the operator and/or public associated with this task. **20**

Alternate

- Q8** On the pro-forma provided, in the capacity of a professional horticulturist, carry out a risk assessment of the area indicated and identify the safe working practices for the identified risks. **20**

Specific comments (All Centres)

This question which related to the hazards to be recorded in a risk assessment in respect to applying herbicides was effectively answered by the majority of candidates.

Three potential hazards which were not commonly identified were: The wrong nozzle in the lance of the knapsack sprayer. It was a cone nozzle, it should have been a fan or anvil nozzle. The ground was very uneven and overgrown which could have obscured obstacles on the ground. Very few candidates mentioned the weather conditions of the day of spraying; this is an important consideration in the risk assessment.

General comments (All Centres)

Candidates appeared to be prepared for the risk assessment question, which was pleasing to observe.

Poor handwriting distracts from the presentation from the candidate. It is recommended that guidance on presenting information should be an important teaching element, as for those guiding candidates for this examination.

Paper 2

- Q9** Discuss with the examiner any **TWO** of the following horticultural machines:

- i) turf strimmer;
- ii) cylinder mower;
- iii) control droplet applicator.

20

Specific comments

Very few candidates selected the control droplet applicator sprayer. This is surprising as this sprayer is now commonly used in horticulture.

Questions relating to the cylinder mower were answered correctly by the majority of candidates. Some confusion however, exists with: The correct cutting height, cleaning procedures to prevent fungal infection, especially from the roller. The

indications of a quality mower, mainly associated with a number of blades and the weight of the machine.

The strimmer was clearly identified by the majority of candidates and was answered efficiently. One question which appeared to be lacking in candidates' responses was the anti-vibration regulations.

General comments

See below.

Alternate

Q9 Discuss with the examiner the safe operation of any **TWO** of the following horticultural machines:

- i) hollow tine aerator;
- ii) rotary mower;
- iii) knapsack sprayer.

20

Specific comments

The control droplet applicator was replaced with the knapsack sprayer. The main issue was the identification of the correct nozzle to use in a specific horticultural situation. The three nozzles displayed for candidates to identify were the cone, fan and anvil nozzles.

A hollow tine aerator was used in place of the strimmer. The main issue observed by the examiner, was in the sequence of lawn maintenance when should a hollow tine aerator be used. There was some confusion by some candidates over this issue.

General comments (All Centres)

The machinery selected for this examination are very commonly used in horticulture. It is strongly recommended that candidates have access to the machinery. Many candidates made comment that they have only seen pictures of many of the machines.

Candidates will not be asked to use machinery in the examination. They will, however, be asked on the machinery identification, the correct use, health and safety considerations and major adjustments.

Q10 On the pro-forma provided, using common names for the pest/disease/disorder and latin names for the host plant:

- a) Identify **EACH** of the pests and host, diseases and host, plant and disorders numbered **1 – 15**.
- b) State **ONE** suitable control strategy for **EACH**, from chemical (the mode of action only), cultural **OR** biological methods, as appropriate.

30

Q11 On the pro-forma provided, identify the plant specimens numbered **16 – 40**, giving in **EACH** case the generic name, specific epithet (if applicable) and the cultivar **OR** variety name (if applicable).

50

- Q12** On the pro-forma provided, identify the substances numbered **41 – 45** and state the main horticultural use of **EACH**. **10**
- Q13** On the pro-forma provided, identify the seeds and weeds numbered **46 – 55**. State in **EACH** case, the generic name for the **seed** specimens, and the generic name with specific epithet for the **weed** specimens. **20**
- Q14** Using the pro-forma provided, answer **EACH** of the questions for the equipment numbered **56 – 58**. **10**

General comments

This examination requires a good knowledge of a wide range of plants, seeds, weeds, pests, diseases and disorders. In addition knowledge of horticultural substances and commonly used horticultural equipment will be required.

The specimens used in the identification questions are carefully selected to ensure they represent the many different sectors of horticulture.

Candidates are advised to study the identification of plants from different groups of horticulture, examples include trees, shrubs, herbaceous perennials, glasshouse plants, turf grasses and turf weeds.

This is not a complete list, but is recorded to provide examples of plant groups within the identification questions.

- Q15** Using the floral key provided identify, down to genus and species, the specimen labelled **E**. Candidates must record the sequence used to identify the plant. **20**

Specific comments

This question was designed to test candidates' knowledge on the use of a floral key. It was requested that candidates identify the family of the wildflower: *Epilobium angustifolium*, which is Onagraceae.

Many candidates ignored the instructions to provide the stages in determining the family and just provided a family name, which in many cases was incorrect. It was disappointing in this case to award zero marks for this question.

On analysing candidates' scripts for the stages for determining the correct family for this plant, it was clear there is confusion over superior and inferior ovaries. The examiner awarded some marks for candidates who recorded the stages followed in the floral key where they were correct, even if the final family name was incorrect.

General comments

For specific disciplines within horticulture, floral keys are important to understand, and it is recommended that all candidates have training in order to gain an understanding of the systematic process of plant identification using floral keys. A popular text is 'Wild Flower Key' by Francis Rose, which together with practice offers an insight into correct plant identification.

Many candidates knew what to do, but did not appear to have adequate

botany knowledge. An example of a major confusion was the identification of inferior and superior ovaries.

Alternate

Q15 Using the pro-forma provided, identify **ONE** distinct plant adaptation for **EACH** of the specimens numbered **59 – 68**. State **ONE** advantage to the plant for **EACH** of the adaptations.

20

Specific comments

This question requested candidates to identify typical plant adaptations and to state the advantage of the adaptation. The question was well answered by the majority of candidates.

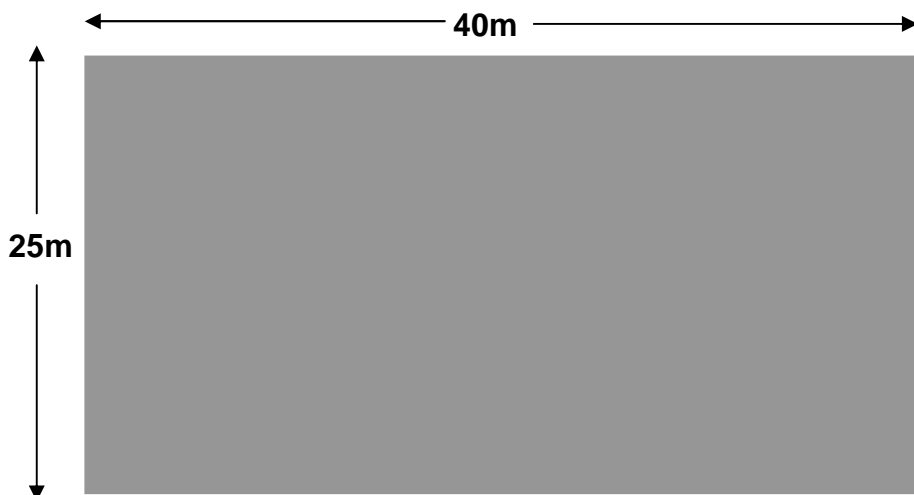
Some confusion however, exists over the identification of rhizomes and stolons, which were often incorrectly recorded. The identification of a cladode was achieved by only 50% of candidates. Adventitious buds on the root (often referenced as toes) were not identified by many candidates.

General comments

It is strongly recommended that candidates have access to live examples prior to this examination of the common plant adaptations. It was clear that many candidates had good knowledge of plant adaptations, but could not identify the adaptations from the live plant material.

The use of photographs and computer-generated images are very useful for the revision of questions of this nature, however it is strongly recommended that candidates do observe live plant material.

Q16



1 hectre = 10, 000m²

- a) Calculate the area shown.
- b) Calculate how many 500mm x 500mm slabs will be required to be placed on the outside perimeter edge of the area.

2

6

- | | | |
|----|--|----------|
| c) | Calculate the amount of nitrogen fertilizer required if 35g/m ² of nitrogen nutrient is required. | 6 |
| d) | Calculate the number of carpet plants required if planted at 250mm centres. | 6 |

Specific comments

The calculation question was answered correctly by many candidates. The one section of the question which did result in poor marks however, was the fertiliser requirement for the given shape. It was clear that many candidates did not know how to work out the amount of fertiliser to apply. It clearly is necessary to know the percentage by weight of the nutrient in the selected fertilizer, in order to answer this section of the question.

General comments

See below.

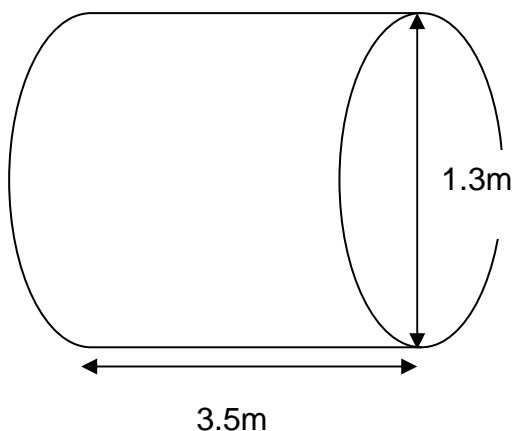
Alternate

Q16 For the oil tank labelled question 16:

- | | | |
|----|---|----------|
| a) | Calculate the litre capacity of the oil tank. | 6 |
| b) | Calculate how long the oil will last if the tank is filled to capacity and the oil usage is 72 litres per hour. | 6 |
| c) | The oil tank is 30% filled with oil. Calculate the cost of filling the oil tank completely (from the 30% oil already in the tank) if the price of heating oil is 42p per litre. Add 20% VAT to your answer. | 8 |

Diagram for Question 16 at Sparsholt College provided on a separate sheet.

The dimensions of the oil tank are:-



Diameter of one end of the oil tank = 1.3m

Length of the oil tank = 3.5m

Specific comments

The capacity of the oil tank was correctly calculated by the majority of candidates.

Many candidates did not know that 1m cubed will hold 1000 L.

The majority of candidates provided correct answers for the usage of oil. Some confusion however was present in the calculation of the 20% percentage, necessary for the question.

General comments (All Centres)

Many candidates did not show any working out, this was clearly requested on the question pro-forma. It was not possible to allocate any marks for candidates who provided an incorrect answer and did not show any working out.

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