



**RHS LEVEL 3 ADVANCED/DIPLOMA IN HORTICULTURE
WRITTEN EXAMINATION**

2:00pm Wednesday 7th July 2010

MODULE J

**Establishment & Maintenance of Decorative Ornamental Turf
Plant Selection, Establishment & Maintenance
Hardy Ornamental Nursery Stock**

Section A – Short Answer Questions

Candidate Number:.....

Candidate Name:.....

Centre Number/Name:.....

IMPORTANT – Please read carefully before commencing.

- i) The duration of the papers in Module J is **2 hours**.
- ii) Answer **ALL** questions in Section A.
- iii) **ALL** questions in Section A carry equal 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.

Please turn over/.....

ANSWER ALL QUESTIONS

MARKS

Q1 Describe the preparation and storage of *Rosa canina* seed prior to sowing.

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Q2 a) State **TWO** different methods of irrigating an outdoor seedbed.

b) Give **ONE** disadvantage of **EACH** method stated in a).

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Q3 Name **FOUR** plants suitable for a south facing wall.

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Q4 a) Name **TWO** dot plants suitable for summer bedding.

b) Name **TWO** dot plants for winter container display.

2

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Please see over/.....

ANSWER ALL QUESTIONS

MARKS

- Q5** List **FOUR** factors to consider when preparing the site for planting a hedge as a windbreak.

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- Q6** List **FOUR** safe working practices, when dividing herbaceous perennials and state **ONE** reason for each.

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- Q7** Describe a method of deep aeration of turf.

2

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Please turn over/.....

ANSWER ALL QUESTIONS

MARKS

Q8 Describe the conditions favouring the spread of a **NAMED** disease of turf.

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Q9 Describe what is meant by a 'flail mower' and explain **ONE** use.

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Q10 Explain what is meant by the term 'stool bed'.

2

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Plant Selection, Establishment & Maintenance
Hardy Ornamental Nursery Stock**

Sections B, C & D - Structured Questions

IMPORTANT – Please read carefully before commencing.

- i) The duration of the papers in Module J is **2 hours**.
- ii) Answer **ONE** question only from **EACH** of the sections **B**, **C** and **D**.
- iii) **ALL** questions carry equal marks.
- iv) Write your answers legibly in the answer booklets provided.
- v) Use **METRIC** measurements **ONLY**.
- vi) Where plant names are required, they should include genus, species and where appropriate cultivar.

Please turn over/.....

Section B – Establishment & Maintenance of Decorative Ornamental Turf

Answer ONE question only from this section

		MARKS
Q11	a) Explain why it is desirable to control weeds in all types of lawn.	4
	b) Describe the methods by which FOUR NAMED examples of weed are able to survive and spread in mown lawns.	8
	c) Describe the different methods of controlling weeds.	8
Q12	a) Describe an annual fertilizer programme for a fine lawn.	8
	b) Explain how fertilizer programmes for a range of grass areas are affected by:	
	i) use;	8
	ii) soil type.	4

Please see over/.....

Section C – Plant Selection, Establishment & Maintenance

Answer **ONE** question only from this section

	MARKS
Q13 a) Describe the planting up and subsequent routine maintenance for a wire hanging basket used for summer display.	12
b) List and describe FOUR genera of plants which could be used in the basket described in a).	8
 Q14 a) Review alternative methods of pruning to renovate old or overgrown woody species.	 12
b) Evaluate the range of pruning equipment available to carry out the tasks reviewed in a).	8

Please turn over/.....

Section D – Hardy Ornamental Nursery Stock

Answer ONE question only from this section

MARKS

- Q15** a) Describe the field production of a **NAMED** 12cm – 14cm hardy ornamental tree under **EACH** of the following headings:
- | | | |
|------|------------------------|----------|
| i) | planting of rootstock; | 4 |
| ii) | grafting; | 4 |
| iii) | maintenance. | 4 |
- b) Describe the process of lifting, grading and transport that needs to be undertaken to achieve the required quality. **8**
-
- Q16** Describe with reference to **NAMED** plant examples, the important factors that contribute to the production of top quality cutting material from stock plants under **EACH** of the following headings:
- | | | |
|------|----------------------------|-----------|
| i) | choice of site; | 3 |
| ii) | selection of mother plant; | 4 |
| iii) | plant spacing; | 3 |
| iv) | maintenance. | 10 |

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Candidates Registered	85		Total Candidates Passed	54	83.08%
Candidates Entered	65	76.47%	Passed with Commendation	15	23.08%
Candidates Absent	10	11.76%	Passed	39	60.00%
Candidates Deferred	10	11.76%	Failed	11	16.92%
Candidates Withdrawn	0	-			

Section A – Short Answer Questions

Q1 Describe the preparation and storage of *Rosa canina* seed prior to sowing.

The need for timing of seed collection and subsequent maceration to aid the separation process was generally understood. The need for stratification was less clearly stated and it was not always appreciated rose seed can also be stored in dry cool conditions.

Q2 a) State **TWO** different methods of irrigating an outdoor seedbed.

b) Give **ONE** disadvantage of **EACH** method stated in a).

Most commonly cited types of irrigation were overhead sprinklers, with the disadvantage of capping, and seep hoses.

The most commonly stated disadvantage for seep hoses was that they may be disturbed during cultivations which is correct if they are on the surface. It was also correctly stated buried porous pipe would be difficult to monitor for water output and probably be too deep to benefit shallow sown seed.

Q3 Name **FOUR** plants suitable for a south facing wall.

Full marks were given for correctly spelt suggestions. The same common plants appeared repeatedly in the answers and it would have been nice to see a wider range of suggestions.

- Q4** a) Name **TWO** dot plants suitable for summer bedding.
- b) Name **TWO** dot plants for winter container display.

While generally well answered, in some instances confusion arose between hardy and half hardy plants. That constitutes a basic misunderstanding of the importance of hardiness in a horticultural context.

- Q5** List **FOUR** factors to consider when preparing the site for planting a hedge as a windbreak.

Full marks could not be gained by failing to appreciate the question was about site preparation, not naming the species to be planted. Best answers listed weed control, primary and secondary cultivations, pH, fertility levels and soil types.

- Q6** List **FOUR** safe working practices, when dividing herbaceous perennials and state **ONE** reason for each.

Candidates recognised the need for steel toe cap boots when handling forks and spades, wearing gloves against skin problems, and care when lifting. The improved safety achieved by removing all supports and canes before work commences to avoid eye injury when bending down over the bed was also rewarded.

- Q7** Describe a method of deep aeration of turf.

The answers that indicated that deep aeration was more extreme than hollow tine cores removed in autumn, mostly talked of deep slitting tines, knives or discs. Few quoted compressed air to shatter lower levels of compaction, another accepted method.

- Q8** Describe the conditions favouring the spread of a **NAMED** disease of turf.

Most answers named a suitable disease, snow mould appearing to be one of the most often cited. In some cases there were good descriptions of a disease when the question asked for conditions favouring the spread of a named disease.

- Q9** Describe what is meant by a 'flail mower' and explain **ONE** use.

Not all descriptions showed understanding of the tines mounted on chains that enable the flail mower to cut rough sward over rougher ground, although most candidates' did hazard that uneven terrain and rough sward, wild flower meadows or cutting after bulbs were the uses and for that had in part been rewarded. Where diagrams were included to show the arrangement and construction of the mode of cut for a flail mower they were poor, inadequately labelled and did little to clarify the answer.

- Q10** Explain what is meant by the term 'stool bed'.

Some answers incorrectly confused mother plants cut back to produce a wealth of shoots for propagation purposes with the correct answer; that stool beds are for plant production through a process of earthing up stools to produce rooted material that is later detached and grown on, usually as rootstocks. Better answers also gave as an example that this was the means of producing rootstocks for top fruit often citing apple tree production.

Sections B, C & D – Structured Questions

Section B – Establishment & Maintenance of Decorative Ornamental Turf

- Q11**
- a) Explain why it is desirable to control weeds in all types of lawn.
 - b) Describe the methods by which **FOUR NAMED** examples of weed are able to survive and spread in mown lawns.
 - c) Describe the different methods of controlling weeds.

The vast majority of candidates attempted this question.

The candidates clearly identified the reasons for controlling weeds and the top marks were obtained by those mentioning the potential disruption of surface levels. In the second part marks were awarded for selection of perennial weeds with the correct means of spread. Annual weeds are not a problem on mown lawns as they need to set seed to spread. The context of the question was lawns and other areas were not appropriate.

The best marks were obtained by each of the methods of controlling weeds being clearly identified and described.

- Q12**
- a) Describe an annual fertilizer programme for a fine lawn.
 - b) Explain how fertilizer programmes for a range of grass areas are affected by:
 - i) use;
 - ii) soil type.

Good marks were obtained by candidates who clearly stated the nutrients required at each season of the year and the reasons for their application. The types of fertilising materials were also required.

In the second part the difference between an ornamental and a more heavily used area was mainly in the amount of nitrogen added to aid resistance to wear and tear and to ensure a good surface. The use of different materials was important.

The difference between a heavy soil with good nutrient retention and a sandy soil with less retention was key to obtaining the marks in this section. The application little and often on sandy soils and the use of organic slow release materials also gained marks.

Section C – Plant Selection, Establishment & Maintenance

- Q13**
- a) Describe the planting up and subsequent routine maintenance for a wire hanging basket used for summer display.
 - b) List and describe **FOUR** genera of plants which could be used in the basket described in a).

Candidates scoring well in part (a) were able to present and describe the necessary activities in a logical structured manner such as stabilising the basket on a large pot, selecting a suitable lining material, incorporating a suitable plastic reservoir, progressively filling the basket with compost, making slits where appropriate in the liner for trailing plants, planting up the top of the basket leaving sufficient space for watering, and allowing plants to establish before placing outside. Routine maintenance activities would consist of attention to watering, feeding, dead-heading, trimming, pest and disease control.

Diagrams could have been used to help clarify the process/structure of baskets, to improve candidates answers.

Part (b) was not as thoroughly answered as part (a). Candidates generally chose to describe individual named species or cultivars. What was required was a descriptive overview of the genus selected, discussing use, range of shapes or habits, colours available etc.

- Q14**
- a) Review alternative methods of pruning to renovate old or overgrown woody species.
 - b) Evaluate the range of pruning equipment available to carry out the tasks reviewed in a).

Part (a) required candidates to discuss appropriate renovation/rejuvenation pruning methods. Those scoring well discussed two broad approaches: complete or a staged technique. 'Complete' suited to a range of common deciduous shrubs is carried out in dormant season, all branches are cut back hard (20cm approx) in one season, feed & mulch is applied in spring and shoots/regrowth are thinned out in subsequent years. 'Staged' is pruning spread over a number of years, suited to evergreens or any shrub whose response may be uncertain. Hard selective pruning may take place over a 3 year period while feeding, mulching & thinning out as needed is as above. A number of candidates chose to discuss aspects of tree pruning in this section. Credit was duly given for this, where the appropriate description was given for topics such as crown thinning.

A significant number of candidates chose to describe routine/annual pruning for spring and summer flowering shrubs. This was not the correct interpretation. Renovation work infers that the routine maintenance cycle has been ignored for a number of years.

Part (b) was answered reasonably well by many candidates. Among topics discussed were suitability for task and safe use/protective clothing. Equipment evaluated included secateurs, knives, loppers, pruning saws, chain saws.

Section D – Hardy Ornamental Nursery Stock

- Q15** a) Describe the field production of a **NAMED** 12cm – 14cm hardy ornamental tree under **EACH** of the following headings:
- i) planting of rootstock;
 - ii) grafting;
 - iii) maintenance.
- b) Describe the process of lifting, grading and transport that needs to be undertaken to achieve the required quality.

This question explored the candidate's knowledge of commercial field production of hardy ornamental trees and those candidates that understood this gained good marks. Failure to name an appropriate tree and its production method meant candidates struggled to gain marks, as did those who described container production. Few candidates indicated actual planting depth and orientation of rows when answering part a) i).

Most candidates had an understanding of the budding/grafting process and there were some good answers to this section, though not all candidates realised that bench grafting is not appropriate to field production.

Few candidates included detailed information on feather control and pruning for head production in the crop maintenance section. Feeding, weeding and pest control was generally well covered.

In section b) most candidates understood the necessity for root protection though not often for head (branch) protection. The grading system was also poorly understood. Answers that included marketing details gained few marks.

- Q16** Describe with reference to **NAMED** plant examples, the important factors that contribute to the production of top quality cutting material from stock plants under **EACH** of the following headings:

- i) choice of site;
- ii) selection of mother plant;
- iii) plant spacing;
- iv) maintenance.

Whilst there were some good comprehensive answers to this question many were not up to a level 3 standard.

A number of candidates failed to name the example and therefore lost possible marks relating to all four sections.

The selection of site was generally well understood and maximum marks were gained when access for maintenance and closeness to services were included.

The selection of mother plant was also generally well understood though some confused this with cuttings. However the effects of plant spacing on stock plants was less well understood. The effect on carbohydrate/nitrogen ratio and the rooting ability of material appeared in only a few answers.

Some candidates used less common examples of named plants and those that interpreted the question to be about cuttings not stock plants gained few marks.

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