



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

**Wednesday 8 February 2012**

**2:00pm – 4:00pm**

**MODULE J**

**Establishment and Maintenance of Decorative Ornamental Turf  
Plant Selection, Establishment and 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.
- vii) Please note, sufficient lined space is provided. It is not necessary that all lined space is used in answering the questions.

**Please turn over/.....**

## ANSWER ALL QUESTIONS

### MARKS

**Q1** Describe the characteristics of *Festuca rubra* ssp. *rubra*. **2**

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**Q2** State **ONE** cultural control for **ONE NAMED** pest of turf. **2**

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**Q3** Explain why *Poa annua* is considered a weed of fine turf. **2**

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**Q4** Name **TWO** rock garden plants suitable for a scree bed. **2**

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**Q5** Name **TWO** herbaceous plants with a strong scent. **2**

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**Q6** Name **TWO** plants with blue flowers suitable for a hanging basket. **2**

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**Q7** Evaluate the use in pruning of **TWO** types of secateurs. **2**

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**Q8** Explain the importance of seed provenance in Hardy Ornamental Nursery Production. **2**

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**Q9** State **FOUR** advantages of on-site stock beds. **2**

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**Q10** State **FOUR** hazards associated with the production of liners. **2**

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**MODULE J**

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

**Sections B, C and 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.
- vii) Please note, sufficient lined space is provided in the answer booklets. It is not necessary that all lined space is used in answering the questions.

**Please turn over/.....**

## Section B – Establishment and Maintenance of Decorative Ornamental Turf

**Answer ONE questions only from this section**

		<b>MARKS</b>
<b>Q11</b>	Describe with reference to <b>TWO NAMED</b> fungal diseases:	
	i) symptoms of occurrence;	<b>6</b>
	ii) host range;	<b>2</b>
	iii) conditions for establishment;	<b>2</b>
	iv) methods of spread;	<b>4</b>
	v) methods of control.	<b>6</b>
<b>Q12</b>	a) Describe how to renovate amenity turf following public events.	<b>12</b>
	b) Review the machinery available for the work carried out in a).	<b>8</b>

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Please see over/.....

## Section C – Plant Selection, Establishment and Maintenance

Answer **ONE** question only from this section

		MARKS
<b>Q13</b>	a) Describe the year round maintenance required for a woodland garden.	<b>8</b>
	b) State the horticultural merit of <b>FOUR NAMED</b> examples of plants suitable for a woodland garden under <b>EACH</b> of the following headings:	
	i) herbaceous;	<b>4</b>
	ii) bulbs;	<b>4</b>
	iii) shrubs.	<b>4</b>
<b>Q14</b>	a) Describe <b>FOUR</b> situations in which 'bulbs' (including corms, tubers and rhizomes) could be used to provide seasonal interest in the garden.	<b>8</b>
	b) Name <b>TWO</b> plants suitable for use in <b>EACH</b> of the situations described in a).	<b>4</b>
	c) Describe planting techniques for <b>EACH</b> of the situations described in a).	<b>8</b>

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## Section D - Hardy Ornamental Nursery Stock

**Answer ONE question only from this section**

		MARKS
<b>Q15</b>	a) Describe seed selection and treatment before sowing a crop of <i>Rosa canina</i> rootstocks.	4
	b) List, in order, the routine maintenance tasks for a crop of <i>Rosa canina</i> rootstocks from sowing to final lifting for dispatch.	10
	c) Describe the lifting and grading of the above prior to lining out.	6
<b>Q16</b>	Describe how <b>EACH</b> of the following factors affects the suitability of a site for an outdoor seed bed for the production of a <b>NAMED</b> hedging plant:	
	i) soil;	5
	ii) water supply;	5
	iii) topography;	5
	iv) access.	5

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### **MODULE J**

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

<b>Candidates Registered</b>	<b>17</b>		<b>Total Candidates Passed</b>	<b>13</b>	<b>100.0%</b>
Candidates Entered	13	76.47%	Passed with Commendation	7	53.85%
Candidates Absent	3	17.65%	Passed	6	46.15%
Candidates Deferred	-	-	Failed	-	-
Candidates Withdrawn	1	5.88%			

### **Section A – Short Answer Questions**

**Q1** Describe the characteristics of *Festuca rubra ssp. rubra*.

Best answers stated the rhizomatous nature of this species enables quick spread and regeneration.

This combined with the ability to withstand close mowing makes it suitable for a fine lawn.

The fine in-rolled leaves help withstand drought.

The reddish colour of the flower heads was sometimes mentioned as well as the comparatively large seed size.

**Q2** State **ONE** cultural control for **ONE NAMED** pest of turf.

Candidates chose a wide range of pests from leatherjackets to badgers.

Full marks were given for stating the timing for the best control of leather jackets is laying polythene or damp sacks over the sward in the evening to encourage the pest to rise to the surface to be picked up in the morning.

Badgers were to be fenced out and moles trapped.

Where worms were considered a pest in fine turf reduction of thatch and acidification of the sward by named fertiliser applications were rewarded.

**Q3** Explain why *Poa annua* is considered a weed of fine turf.

The best answers appreciated that the ephemeral nature of annual meadow grass leads to bare patches in the sward, lack of winter sward and space for the invasion of other weeds.

Mention was made of the variation in colour as well as the flat growth allowing flowering and seeding below the height of cut in fine swards.

The importance of the difficulty to control weed grass within a grass sward was only rarely mentioned.

**Q4** Name **TWO** rock garden plants suitable for a scree bed.

There was a great deal of confusion between small herbaceous plants and plants specifically adapted to scree conditions.

Such plants have long, tough, often tap roots to anchor them in the constantly moving terrain, leaves modified to withstand the frequent droughts encountered in the free draining situations of a scree. They are generally of a diminutive height, are spreading plants, or rosettes, or cushion plants.

Candidates were rewarded where this was recognised in their choice of plant.

**Q5** Name **TWO** herbaceous plants with a strong scent.

The best answers included strongly perfumed species such as lilies or wallflowers while marks could not be denied to students choosing unpleasantly scented species. Where the scent claimed was indistinct, or in dispute as being only discernible to a few highly tuned noses, the marking could not be so generous.

**Q6** Name **TWO** plants with blue flowers suitable for a hanging basket.

The favourite plants included winter flowering pansies e.g. *Viola* Universal Series Blue, blue strains of trailing lobelia *Lobelia erinus* and blue *Petunia* Surfinia although the range of plants rewarded was wide ranging.

**Q7** Evaluate the use in pruning of **TWO** types of secateurs.

Candidates generally appreciated that the advantage of by-pass secateurs was the scissor action, resulting in a cleaner less damaging cut than the crushing single blade of the anvil secateurs. A few candidates mentioned the ease of sharpening and simple replacement of the straight edged blade in the anvil type secateurs as well as the lower procurement cost. (This makes the anvil type favoured where teams of employees need to be supplied with secateurs).

**Q8** Explain the importance of seed provenance in Hardy Ornamental Nursery Production.

The foremost importance of provenance is the geographic source of the parent plant. Although often inferred, this was not always stated by candidates. Provenance enables matching the resultant offspring to similar environmental conditions in the UK. Also important is the criteria of choice of the parent for trueness to type, vigour, and viability of the resultant offspring, be the species native or exotic.

Legislation demands the source of seed for forestry production can be traced and this was not widely recognised by candidates.

**Q9** State **FOUR** advantages of on-site stock beds.

The best answers acknowledged the practical advantages of having stock close to hand to monitor the need for pest and disease control, general husbandry, and modifying growth to fit the propagation programmes.

The reduction in cost of labour, fuel, and vehicles as there is less need to travel was recognised. It was seen to be an advantage to have stock close-by so there was less likelihood of deterioration of collected propagation material.

**Q10** State **FOUR** hazards associated with the production of liners.

In answer to this straight forward question the usual often stated hazards were rewarded: problems with lifting heavy trays of plants, stakes in the eye when bending to tend stock, noxious sap, cuts from knives and exposure to chemicals.

Some candidates recognised the long term problem associated with sun exposure leading to skin cancer when working in field conditions.

Dust encountered from soil ameliorants or in the potting bench environment was included in some answers and was also rewarded.

There was little mention of back problems from sitting at the propagation bench for long periods, or often repeated hand movements resulting in repetitive strain injury. Candidates still confused hazards to people with problems affecting plants during nursery stock production.

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## Sections B, C & D – Structured Questions

### Section B – Establishment & Maintenance of Decorative Ornamental Turf

**Q11** Describe with reference to **TWO NAMED** fungal diseases:

- i) symptoms of occurrence;
- ii) host range;
- iii) conditions for establishment;
- iv) methods of spread;
- v) methods of control.

Only a small number of candidates did this question, but the better answers gave clear details about the identification of the various diseases and showed a clear understanding of the conditions that favour the various diseases.

The candidates that lost marks did so by covering non-turf diseases e.g. damping off, grey mould, which should have been covered in other sections of the syllabus.

**Q12** a) Describe how to renovate amenity turf following public events.

b) Review the machinery available for the work carried out in a).

Most candidates that did this question understood the basic requirements of turf renovation; some candidates raised many good points about the initial inspection of the site before any renovation was undertaken. Other good points included the preparation of the site before the public event took place, to ensure that the turf was in good condition, and could recover more quickly after the event.

Candidates lost points by leaving the renovation until the autumn, by not understanding what equipment could be used to carry out turf renovation work, and what the different equipment would be used for, e.g. it was clear that some candidates did not know or understand the differences between scarification, verti-cutting, and slitting equipment.

## Section C – Plant Selection, Establishment & Maintenance

- Q13** a) Describe the year round maintenance required for a woodland garden.
- b) State the horticultural merit of **FOUR NAMED** examples of plants suitable for a woodland garden under **EACH** of the following headings:
- i) herbaceous;
  - ii) bulbs;
  - iii) shrubs.

The first part of the question looked for a range of appropriate tasks with suitable descriptions; these could include for example:

- tree work (check tree ties/stakes, canopy thinning, weeding, planting),
- shrubs (coppicing),
- herbaceous/ground cover (division, cutting back), and
- pathways (top up with wood chip).

Candidates scoring well listed & described the activities under the correct season of the year.

For part b), plant selections were required in the appropriate categories. Many candidates did well in this section providing examples, such as; *Primula vulgaris* (yellow flowers), *Hyacinthoides non-scriptus* (blue flowers), *Ilex aquifolium* (evergreen, red berries, coppicing).

- Q14** a) Describe **FOUR** situations in which 'bulbs' (including corms, tubers and rhizomes) could be used to provide seasonal interest in the garden.
- b) Name **TWO** plants suitable for use in **EACH** of the situations described in a).
- c) Describe planting techniques for **EACH** of the situations described in a).

This was a linked 3 part question requiring situation/plants/planting technique. For example-Rock & scree gardens – best created on a slope, outcrops, keystone, use of local material, pay attention to drainage; *Cyclamen coum*, *Anemone blanda*; Shallow planting of corms in gritty organic soil.

Candidates demonstrated a good knowledge for the use of this type of planting material in a wide range of locations in the garden – popular ones included formal bedding, naturalization, water gardens. Those scoring well were able to list appropriate named examples, and also describe appropriate planting detail, which could include-depth, arrangement, soil type season of planting.

## Section D – Hardy Ornamental Nursery Stock

- Q15** a) Describe seed selection and treatment before sowing a crop of *Rosa canina* rootstocks.
- b) List, in order, the routine maintenance tasks for a crop of *Rosa canina* rootstocks from sowing to final lifting for dispatch.
- c) Describe the lifting and grading of the above prior to lining out.

Seed selection and treatment was generally well understood and therefore well answered.

Candidates would have gained more marks by listing the tasks for the second part of the question in chronological order, rather than just identifying them.

The candidates had a reasonable grasp of normal practice for the third part of the question but would have gained more marks by describing the lifting process and including a detailed description of the grades for the rootstocks.

- Q16** Describe how **EACH** of the following factors affects the suitability of a site for an outdoor seed bed for the production of a **NAMED** hedging plant:

- i) soil;
- ii) water supply;
- iii) topography;
- iv) access.

The first section was generally well answered. Candidates that included texture, structure, pH, fertility, depth, drainage, air filled porosity and water holding capacity gained maximum marks.

Whilst most candidates indicated both mains water and natural supplies or saved water could be used as a water supply, few commented on the necessity of assessing the quality of the water.

The third section was generally well answered with candidates identifying aspect, wind protection, light/shade, frost pockets etc. Many identified slope as important but failed to indicate in what direction.

Most candidates identified both public access and worker access to the site as important, as was closeness to markets and ease of maintenance operations. Few added that closeness to the growing on site would reduce the potential for root desiccation.

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