



R2104

UNDERSTANDING PLANT PROPAGATION

Level 2

Monday 14 February 2011

11.00 - 11.30

Written Examination

Candidate Number:

Candidate Name:

Centre Number/Name:

IMPORTANT – Please read carefully before commencing:

- i) The duration of this paper is **30 minutes**;
- ii) **ALL** questions should be attempted;
- iii) **EACH** question carries **10 marks**;
- iv) Write your answers legibly in the spaces provided;
- v) Use metric measurements only;
- vi) Where plant names are required, they should include genus, species and where appropriate, cultivar.

Answer all questions

Marks

1. State **FIVE** benefits of propagating plants by **EACH** of the following means:

- i) vegetative;
- ii) seed.

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Please see over.....

2. Under the following headings, describe **ONE** suitable method used to remove seed from a **NAMED** plant example which produces fleshy berries:

- | | | |
|------|----------------------|---|
| i) | named plant example; | 1 |
| ii) | harvesting; | 2 |
| iii) | maceration; | 2 |
| iv) | separation; | 2 |
| v) | cleaning; | 2 |
| vi) | drying. | 1 |

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Please turn over

4. a) Name **TWO** plants suitable for propagating by semi-ripe cuttings.

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- b) State **FOUR** processes involved in the preparation of a semi-ripe cutting (after the collection of plant material).

Please turn over.....

5. a) State what is meant by the term 'budding'. 2

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- b) Name a suitable plant that can be propagated by 'T' budding. 1

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- c) Describe the process of 'T' budding with the aid of a clearly labelled diagram. 7

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Space for a diagram

Please see over

- i) leaf petiole;
- ii) leaf lamina.

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**The Royal Horticultural Society, Wisley, Woking, Surrey GU23 6QB
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Candidates Registered	704	Pass with Commendation	50 (8.64%)
Candidates Entered	579	Pass	272 (46.98%)
Absent/Withdrawn/Deferred	125	Fail	257 (44.39%)
Total Candidates Passed	322 (55.61%)		

Senior Examiner's Comments:

1. Candidates should be able to demonstrate a good range of plant knowledge and be able to give accurately named plant examples where appropriate. Common names and generic names are often too vague and cannot be rewarded in the positive manner that genus, species and where appropriate, variety/cultivar can. This is particularly important when answering questions relating to particular (named) plant(s). Marks can only be awarded for these narratives where the example(s) are correctly and fully identified.
2. Candidates must be able to display accurate knowledge of the technical terms and concepts detailed in the syllabus, in the context of horticulture and be aware that wider interpretation will not be rewarded. The examination should be regarded as a possible introduction to higher level studies, which will only be open to those who are in possession of a clear understanding of the horticultural terms and concepts which are current.
3. The introductory rubric given on the first page of each question paper should be read carefully by candidates. At each examination there are a significant number of candidates who ignore or misread the instructions given and consequently may not perform as well as they could have done.
4. Candidates should pace themselves during each paper. The most successful candidates allow sufficient time to read the question thoroughly before answering it and also take time to read through their answers. They should take care to write as legibly as possible, so that the examiner is in no doubt about what is intended.
5. Candidates need to interpret key words within questions, particularly those such as 'state', 'list' and 'describe'. Questions requiring descriptions or explanations obviously require a more detailed answer than those requiring a list.

6. It is important to ensure that responses to questions are to the point. Candidates should bear in mind that small sketches might be used to convey information more succinctly than words.
7. Successful candidates ensure that their answers are focused and to the point. It is disappointing when they cannot be rewarded for their efforts because the answer is irrelevant to the particular question. Candidates should take note of the mark allocation for specific sections and allocate their time and efforts accordingly.
8. Diagrams can enhance an answer and where appropriate can replace detailed descriptions. They should be large, clear and well annotated, and preferably in pencil. Colour may be used successfully but only where it is relevant to the answer.
9. In each examination it is clear that some candidates are ill prepared to answer papers of the type set. It is essential that candidates have the opportunity to practice questions. Ideally some papers should be answered in a time constrained situation.
10. Candidates should be aware of the reading list of suggested books for the RHS Level 2 Certificate in The Principles of Plant Growth, Propagation and Development which is available from the Qualifications Section and can also be found on the RHS website together with past papers.

Examiners' Comments:

	Marks
1. State FIVE benefits of propagating plants by EACH of the following means:	
i) vegetative;	5
ii) seed.	5
<p>Most candidates were able to provide five benefits of propagating plants vegetatively and from seed. The better candidates qualified their answers and provided specific answers for each method rather than giving e.g. the negative for seed as a positive benefit for vegetative means e.g. plants raised vegetatively come true to type and seed is the only method suitable to propagate annual and biennial plants.</p>	
2. Under the following headings, describe ONE suitable method used to remove seed from a NAMED plant example which produces fleshy berries:	
i) named plant example;	1
ii) harvesting;	2
iii) maceration;	2
iv) separation;	2
v) cleaning;	2
vi) drying.	1

Candidates provided a range of examples of fleshy berries, the more suitable included *Sorbus aucuparia* and *Viburnum opulus*. The processes

involved in the harvesting and preparation of the seed for storage were well described by the better candidates and included appropriate detail of the need to harvest the fruit as soon as it is ripe in the autumn to prevent chemical inhibitors impregnating the seed, a suitable method used to macerate the fruit (e.g. gentle crushing) and separate the seed from the flesh (e.g. floatation) to avoid infection during storage and the need to dry the seed on paper prior to storage.

3. a) *Define the term 'seed dormancy'.* 2
- b) *Name and describe **TWO** methods of overcoming seed dormancy, giving a **NAMED** plant example for **EACH**.* 8
 - a) Candidates who gave an appropriate definition of dormancy clearly understood the term and referred to the seed as being viable and that dormancy is a block to the completion of germination even under favourable conditions.
 - b) The better candidates provided suitable plant examples that related to the specific dormancy factors being described. A range of methods were described for hard seed coat dormancy including scarification, chipping (nicking), hot water treatment and acid digestion. Other dormancy factors that were discussed included growth inhibiting chemicals present in the seed coat which require washing to aid their removal and plant growth substances like gibberellins that require stratification. Unfortunately a few candidates confused scarification with stratification.
4. a) *Name **TWO** plants suitable for propagating by semi-ripe cuttings.* 2
- b) *State **FOUR** processes involved in the preparation of a semi-ripe cutting (after the collection of plant material).* 8
 - a) Full botanical plant names of suitable examples like *Berberis thunbergii* or *Chamaecyparis lawsoniana* were required for full marks.
 - b) Candidates who had read the question correctly were able to state relevant processes in the preparation of semi-ripe cuttings and provide detailed information. This included; the correct length of the cutting, position of cuts below and above a node, removal of foliage and terminal bud and treatment of the cutting with hormone rooting power.
5. a) *State what is meant by the term 'budding'.* 2
- b) *Name a suitable plant that can be propagated by 'T' budding.* 1
- c) *Describe the process of 'T' budding with the aid of a clearly labelled diagram.* 7

Space for a diagram:

- a) The term budding was understood by most candidates but those who made statements that included single bud and compatibility of rootstock and bud for success gained full marks.
- b) For maximum marks candidates needed to provide full plant names as stated in the rubric of the examination paper.
- c) The better candidates used diagrams which were clearly labelled and showed height of budding, cuts on rootstock and removal of bud from budstick, length of cuts, matching of cambium and tying. It is important to also know the optimum time for 'T' budding to be successful.

6. *Describe how to propagate a **NAMED** plant from **EACH** of the following types of leaf cutting:*

- i) *leaf petiole;* 5
- ii) *leaf lamina.* 5

The most popular plant example provided for leaf petiole cuttings was *Saintpaulia ionantha* and for leaf lamina *Streptocarpus x hybridus*.

For each type of cutting the best responses included details of the selection of material, trimming of cuttings to correct length/size accordingly, choice of a suitable rooting media, insertion and watering in of the cuttings and placing them in an appropriate rooting environment.

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May 2011