Royal Horticultural Society

R3104

UNDERSTANDING APPLIED PLANT PROPAGATION

Level 3

Thursday 16 February 2012

15:30 – 16.15

Written Examination

Candidate Number:.....

Candidate Name:.....

Centre Number/Name:.....

IMPORTANT – Please read carefully before commencing.

i) The duration of this paper is **45 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.

vii) Please note, sufficient lined space is provided. It is not necessary that all lined space is used in answering the questions.

Ofqual Unit Code A/601/1043

ANSWER ALL QUESTIONS

MARKS

Q1 Describe the significance of **EACH** of the following in seed propagation:

i)	testa;	**3**
ii)	micropyle;	**1**
iii)	embryo;	**3**
iv)	endosperm.	**3**

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MARKS

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MARKS

Q2 a) Name **ONE** plant in **EACH** case that can be successfully propagated from:

i) leaf cuttings;
ii) leaf petiole cuttings. **2**

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b) Describe the vegetative propagation of **ONE** of the plants named in a), up until the first potting stage. **8**

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MARKS

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MARKS

Q3 a) Name **THREE** techniques for the vegetative propagation of herbaceous perennials, providing **ONE NAMED** plant example in **EACH** case. **3**

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b) Describe the propagation by seed of **ONE NAMED** herbaceous perennial. **7**

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MARKS

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MARKS

Q4 Describe how **EACH** of the following contributes to pre-germination and post-germination disease control:

i)	water management;	**2**
ii)	growing media;	**2**
iii)	sowing technique;	**3**
iv)	propagation facilities.	**3**

Please see over/.....

MARKS

Total Mark

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RHS LEVEL 3 CERTIFICATE IN THE PRINCIPLES OF PLANT GROWTH, HEALTH AND APPLIED PROPAGATION WRITTEN EXAMINATION

15:30pm Thursday 16 February 2012

R3104

UNDERSTANDING APPLIED PLANT PROPAGATION

Candidates Registered	**90**		**Total Candidates Passed**	**54**	**80.60%**
Candidates Entered	67	74.44%	Passed with Commendation	42	62.69%
Candidates Absent	15	16.67%	Passed	12	17.91%
Candidates Deferred	7	7.78%	Failed	13	19.40%
Candidates Withdrawn	1	1.11%			

Q1 Describe the significance of **EACH** of the following in seed propagation:

i) testa;
ii) micropyle;
iii) embryo;
iv) endosperm.

This question is designed to test both the student's understanding of seed anatomy and the role it plays in seed germination.

Most candidates were able to accurately describe the significance of the testa and micropyle but there was some confusion relating to the significance of the embryo on the endosperm in seed propagation.

Candidates who related their answers directly to the question rather than simply describing each part of a seed scored well. The candidate who explained for example, the role of the endosperm in seed germination or what effect the testa has in first protecting the embryo, and then preventing seed germination until the seed coat has softened, will have gained maximum marks.

Q2 a) Name **ONE** plant in **EACH** case that can be successfully propagated from:

i) leaf cuttings;
ii) leaf petiole cuttings.

b) Describe the vegetative propagation of **ONE** of the plants named in a), up until the first potting stage.

This question is designed to test the candidate's understanding of leaf and leaf petiole cuttings, a type of propagation most closely associated with house plants.

This question was generally well answered with maximum marks awarded in part a) to candidates who named the correct plant examples in full botanical latin.

Though this question does allow the candidate to describe any vegetative propagation technique in part b), most candidates described one of the techniques provided in part a).

It is important to stick within the parameters of the question and those candidates who did just that were more likely to score well. Information relating to growing on beyond the first potting stage cannot receive marks.
Those candidates who were able to accurately describe the size and shape of the cutting, the rooting media, propagation environment including temperature at the rooting zone, all scored well.

Q3 a) Name **THREE** techniques for the vegetative propagation of herbaceous perennials, providing **ONE NAMED** plant example in **EACH** case.

b) Describe the propagation by seed of **ONE NAMED** herbaceous perennial.

This question is designed to test the candidate's knowledge of a range of propagation techniques associated with herbaceous perennials.
In part a) maximum marks can be achieved by the student who provides three distinct vegetative propagation techniques associated with three herbaceous perennials, correctly named in full botanical latin. This also applies when naming an herbaceous perennial in part b).

It is always important to stick within the parameters of the question and those candidates who did just that were more likely to score well. Information relating to growing beyond propagation cannot receive marks.

Those candidates who were able in part b) to accurately describe the sowing technique, media, germination environment, controls for pathogens and the correct stage at which a germinated seedling is pricked out, all scored well. Marks can only be awarded when describing the propagation of an herbaceous perennial by seed, and not for bedding, house or woody plants as was the case with some of the answers.

Q4 Describe how **EACH** of the following contributes to pre-germination and post-germination disease control:

i) water management;
ii) growing media;
iii) sowing technique;
iv) propagation facilities.

This question is designed to test the candidate's understanding of the way in which environments, techniques, facilities and growing media influence disease control within the germination process.

This is a tightly constructed question and candidates who related their answers in each part to disease control within the germination process scored the best marks. In the context of this question the candidate should consider 'pre' to mean having been sown but not yet germinated and 'post' to mean up to the point at which the seedling is ready for pricking out but not beyond.

Answers that reference water quality and quantity, the structure and nutrient content of the growing media, appropriate sowing techniques relating to seed size, and the need for clean, sterile facilities which are able to control light, heat and moisture levels all scored well. In each part of the question the answer should consider both pre and post germination control.