



**R3103**

**THE MANAGEMENT OF PLANT HEALTH**

**Level 3**

**Thursday 16 February 2012**

**11:30 – 12:30**

**Written Examination**

Candidate Number:.....

Candidate Name:.....

Centre Number/Name:.....

**IMPORTANT – Please read carefully before commencing.**

- i) The duration of this paper is **60 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 M/601/1038

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### ANSWER ALL QUESTIONS

## MARKS

**Q1** a) Describe the symptoms caused by **EACH** of the following plant diseases:

- i) powdery mildew;
- ii) grey mould;
- iii) coral spot.

6

**Please see over/.....**

- b) Identify **TWO** different control methods for **EACH** of the following:

- i) powdery mildew;
- ii) grey mould.

4

Total Mark

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**Q2** a) Describe the damage caused by **EACH** of the following:

- i) Solomon's seal sawfly;
- ii) scale insects;
- iii) mealy bugs.

6

This image shows a full page of white paper with horizontal dashed lines, typical of primary school writing paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

b) Identify **TWO** different control methods for **EACH** of the following pests:

- i) Solomon's seal sawfly;
- ii) scale insects.

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Total Mark

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**Q3** a) State the necessary considerations when selecting a chemical pesticide.

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b) List the requirements for the safe use of pesticides.

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Total Mark

**Q4** a) Describe the life-cycle of a rust on a **NAMED** host plant.

**5**

**Please see over/.....**



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

### Q5

Describe the measures put in place to prevent the distribution of pests and diseases through the movement of plants for **EACH** of the following:

- i) within the European Union;
- ii) from outside the European Union.

**5**

**5**

**Please see over/.....**

Total Mark

6

**Q6** a) Describe the symptoms of an outbreak of honey fungus.

**Please see over/.....**

4

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Charity Reference Number: 222879/SC038262





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

**11:30am Thursday 16 February 2012**

**R3103**

**THE MANAGEMENT OF PLANT HEALTH**

<b>Candidates Registered</b>	<b>151</b>		<b>Total Candidates Passed</b>	<b>90</b>	<b>72.0%</b>
Candidates Entered	125	82.78%	Passed with Commendation	35	28.0%
Candidates Absent	18	11.92%	Passed	55	44.0%
Candidates Deferred	6	3.97%	Failed	35	28.0%
Candidates Withdrawn	2	1.33%			

**Q1** a) Describe the symptoms caused by **EACH** of the following plant diseases:

- i) powdery mildew;
- ii) grey mould;
- iii) coral spot.

b) Identify **TWO** different control methods for **EACH** of the following:

- i) powdery mildew;
- ii) grey mould.

The Symptoms of powdery mildew were generally well described, particularly where reference was made to sites of primary infection and their rapid development to leaves, stems and buds.

Grey mould was correctly named as *Botrytis cinerea* by many candidates and was generally well described. Description that made reference to the black sclerotia seen within the mycelium mass and the characteristic cloud of spores when disturbed made for a more complete answer.

Coral spot was generally well described, which included the identification of the disease as a weak parasite that it is found on dead and weakened branches, and reference should have been made to girdling and cankers.

It was pleasing to see candidates referring to the mode of action as well as naming fungicides when identifying suitable control measures for powdery mildew. Cultural controls for powdery mildew are limited and some candidates correctly made reference to climatic and environmental conditions that should be understood when trying to manage this disease.

Candidates correctly identified a range of good husbandry and plant hygiene measure to mitigate grey mould diseases. Chemical fungicides were also mentioned together with the use of some bio fungicides.

**Q2** a) Describe the damage caused by **EACH** of the following:

- i) Solomon's seal sawfly;
- ii) scale insects;
- iii) mealy bugs.

b) Identify **TWO** different control methods for **EACH** of the following pests:

- i) Solomon's seal sawfly;
- ii) scale insects.

There were many complete answers describing Solomon's seal sawfly damage including the scars where eggs have been deposited into the leaf stalk, the description of the larvae and the potential extensive damage they can inflict.

Some candidates described the immobile colonies of scale insects on stems and leaf mid rib veins and the honey dew excreted by many scale insects resulting in the secondary problem of sooty mould.

Candidates were able to describe the mealy bug pests and the typical symptoms including the secondary problem of sooty mould and its debilitating effect on the plant.

In the second part of the question candidates correctly stated physically removing larvae as a viable method of reducing sawfly damage. Reference was also made to the use of systemic and contact insecticides to control the larval stage of this pest.

A range of control measures were identified for scale insects, including wiping the pest with alcohol and soap solutions, named systemic and contact insecticides and biological controls.

- Q3** a) State the necessary considerations when selecting a chemical pesticide.
- b) List the requirements for the safe use of pesticides.

Marks were awarded for identifying the use of approved products, rotation of pesticides to prevent resistance, environmental considerations, and chemical mode of action. Some candidates also correctly identified the importance of selecting chemicals which complemented integrated control programmes.

The second part of the question was answered very well; some candidates achieving full marks, important elements for this question must include reference to the statutory requirements of using and storing chemicals, training, equipment, safety procedures, environmental impact and product knowledge.

- Q4** a) Describe the life-cycle of a rust on a **NAMED** host plant.
- b) Describe the range of cultural operations that can be carried out to prevent and reduce infection.

Rust diseases can be quite complex and it was important for candidates to correctly describe the life cycle of the disease in relation to the named host plant. Candidates who correctly named the various spore types in relation to its life cycle and, where appropriate named the secondary host plant gained full marks.

Many scripts contained generalised references to control of plant diseases. More specific controls for rust diseases include: where possible selecting resistant varieties, removal of potential secondary host plants including weeds, end of season clean-up and destruction of plant debris, removal of infected material when seen. Reference should also be made to managing the plant environment to mitigate the spread of the disease.

- Q5** Describe the measures put in place to prevent the distribution of pests and diseases through the movement of plants for **EACH** of the following:
- i) within the European Union;
  - ii) from outside the European Union.

Response to the first part of the question required references to the European Union passport scheme for registered growers who may hold plants that potentially are hosts for quarantine pest and diseases. Candidates who also explained the function of the EC protected zones scheme gained higher marks. Many candidates correctly identified the need for a phytosanitary certificate when importing plants and related materials from outside of the EU. Fuller answers contained more detailed information including understanding the responsibility of the importer in obtaining appropriate documentation, as well as the controls and checks carried out at the materials point of entry. Some candidates correctly made reference to the restriction and controls in place to manage the personal import of plants and related materials from a third country.

- Q6**
- a) Describe the symptoms of an outbreak of honey fungus.
  - b) State **FOUR** strategies for control of this disease.

The symptoms of Honey Fungus disease was well described, many answers contained accurate description of the biology of the fungus and how it spreads and infects host plants.

Most candidates identified appropriate methods of control which included identifying disease susceptible and resistant plants, destruction of tree stumps, isolation by trenching and use of vertical barriers, as well as resting infected ground.

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