

## HORT 201 FINAL EXAM STUDY GUIDE

Monday April 28<sup>th</sup>, 2008 3:20-5:20pm SMTH 108

The final exam will be comprehensive and is worth 100 points.

75% of the exam will test mastery of material covered in lectures 21-27 (since the Midterm II Exam) The main points to be tested from these lectures are highlighted below.

25% of the exam will test your knowledge of material from the previous Midterms and will focus on the following 5 topics:

- Understand the impact of juvenility and ways to rejuvenate stock plants for cutting propagation
- What is scarification and stratification? How are they done and what impact do they have on seed dormancy in Honey locust and Redbud?
- Acclimatization- define and describe how it is done. Provide 2 physiological reasons why it is necessary.
- Define organogenesis and embryogenesis.
- Seed germination biochemistry- define aleurone layer, describe what alpha-amylase does and understand where gibberellins are, where it goes and what it does as well as the relationship of light on GA in dicots.

### Lecture #21 – Plant Breeding Systems

- Define what a breeding system is.
- Name and describe 4 breeding systems.
- Describe 2 methods of ‘fixing’ a population so it breeds true.
- Define ‘inbreeding depression’ and understand its cause.
- Define ‘hybrid vigor’ and how to produce it.

### Lecture #22 – Breeding Systems (continued)

- Understand 4 mechanisms for preventing self-pollination.
- Define ‘sexual incompatibility’, ‘dioecious’, ‘monoecious’ and ‘dichogamous’.
- Distinguish between gametophytic apomixis and sporophytic apomixes.
- Define ‘parthenocarpy’. List possible advantages of parthenocarpy in production and in nature.
- Know 2 advantages sexual reproduction in plants offers versus asexual.

### Lecture #23 – Seed Certification

- Define ‘provenance’, ‘ecotype’
- Understand how seed provenance and ecotype affect plant production in a new location.
- Know ways to test seed viability, purity and vigor
- Be able to provide quantitative information on the relationship between seed shelf-life and the moisture and temperature in the environment.

#### Lecture #24 – Grafting Introduction

- Understand reasons why grafting is done.
- Be able to describe the nature of the genetic limits to grafting.
- Define 'graft incompatibility' and its symptoms.
- Understand well the 5 factors that affect grafting success and be prepared to describe each.

#### Lecture #25 – Grafting Techniques

- Be able to name a suitable type of graft to use given a set of conditions (ex. scion and rootstock size and condition, bark thickness and condition, bleeding, heavy rainfall, disease etc)

#### Lecture #26 – Graft Healing

- Describe the steps in the graft healing process.
- Define 'double-working' and how it is useful in overcoming incompatibility.

#### Lecture #27 – Rootstock: Scion Effects

- Understand the Hormone Hypothesis as a possible mechanism to explain rootstock effects on scion.