

Expected Questions for Exam 1

HOS 4341

HOS 6932

A list of 16 expected questions is provided. Feel free to email me if you need assistance with any of these. Out of these, 12 questions will be finally asked on the exam and you will have to answer 7 of these. Short precise answers are expected unless otherwise mentioned.

1. Discuss the difference in location of meristem in dicots and monocots. Why doesn't a dicot weed grow back and the grass does after you mow a lawn?
2. List some of the vegetative changes that accompany phase transition from juvenile to adult vegetative phase and from adult vegetative phase to adult reproductive phase. Is the arrangement of the developmental phases different in monocots? Provide an example.
3. What are the three subtypes of dormancy and which one is the most critical? Also, suggest innovative ways to determine the stage of dormancy in a bud?
4. Explain the difference between stratification and vernalization and at what stage of a plant's life cycle are they applied at.
5. Out of the four causative agents for dormancy, which one integrates the other three?
6. Define the terms Genome, Transcriptome and Proteome and what do they indicate?
7. What are the two requirements for release of dormancy for bud break? Does GDH accumulate before, during or after CR? What are the effects of insufficient chilling?
8. How do plants perceive photoperiod? What is the consequence of a flash of red light in flowering of short day plant? Which protein connects photoreceptors, circadian rhythm and photoperiod for flowering?
9. What are the four pathways that affect flowering? Vernalization affects the level of which protein to allow flowering?
10. In barley, application of 0.01 mg/L of auxin increases the number of flower primordia. What would you expect if you applied 100 mg/L of auxin? Would 0.01 mg/L of auxin have the same affect on apples?
11. A farmer observes that some of his corn plants have malformed corn cobs near the male tassel. Which gene is mutated in this case? Is there a hypothetical alternative to correct this malfunction?
12. What is the purpose of cross pollination? Does it provide any selective advantage? What are some of the morphological adaptations in the flowers that are pollinated by bats?
13. Explain the affect of sucrose on fruit set. How can you increase the sucrose levels of a branch or a tree as a whole?
14. What are the three stages of fruit growth? Distinguish between sigmoid and double sigmoid fruit growth curve.

- 15. Is ethylene involved in ripening of non-climacteric fruits? If not what are the signals involved in ripening of non-climacteric fruits?**
- 16. Gibberellic acid is involved at several stages of vegetative and reproductive growth. List a few of these events. In your opinion, is GA a good candidate for being a flowering hormone?**