

HORT 3000 Growth and Development of Horticultural Plants

Fall 2011 FINAL EXAM STUDY GUIDE – Topics covered on previous exams

Monocot vs. Dicot – morphology, anatomy, photosynthesis

Plant organs – vegetative vs. reproductive

Floral morphology

Flower to fruit morphology

Chloroplast structure

Cell wall structure

Steps in cell development

Membrane structure

Process of cell elongation

Symplast vs. apoplast

Xylem vs. phloem

Plasmodesmata

Leaf anatomy and morphology

Stem anatomy

Meristem types

Xylem secondary thickening

Phloem structure

Wavelengths of light absorbed by chlorophyll

Chlorophyll structure

Dual nature of light

Energy of light

Light intensity vs. quality

Purpose of electron transport chain

Purpose of photosynthetic carbon reduction cycle

Benefits of CAM

Differences and similarities between C4 and CAM

Photophosphorylation

Kranz anatomy

C3 vs. C4 vs. CAM photosynthetic rates

Photorespiration vs. photoinhibition

Gross Photosynthesis vs. Net Photosynthesis vs. Respiration

Compensation point (CO₂, light, etc.)

Temperature effects on photosynthesis and respiration

Variation in photosynthetic rates over the course of a day

Pressure Flow Hypothesis

Spring sap flow

Growth vs. maintenance respiration

Root anatomy and morphology

Mycorrhizae benefits

Cohesion Tension Theory

Plant water potential

Soil-Plant-Atmosphere Continuum

Water movement along a water potential gradient

Nutrient movement pathways through root including cross-membrane transport

Nutrient concentrations in tissue: deficient, critical, adequate, toxic

Macronutrients vs. micronutrients

Mobile vs. immobile nutrients