Plant Review

(Study the Plant Diversity notes and lab, flowering plant diagram and Ch. 36 packet)

1. What constitutes the male and female gametophyte generations of an angiosperm?
   pollen grain + embryo sac
2. After fertilization, the ovule becomes the seed and the ovary becomes the fruit
3. What two things are fertilized in angiosperms and what do those two things become following fertilization?
   egg → zygote
   2 polar nuclei → 3N endosperm
4. What is the purpose of a fruit?
   help disperse seeds, sometimes protect seeds
5. Describe the path that a pollen tube takes to reach the female gametophyte in Anthophyta:

Stigma → style* → ovary → ovule → embryo sac

* do not need to know

6. In what flower structure would you find a microsporangium?
   anther
7. What process gives rise to microspores and megaspores? meiosis What do spores become?
   gametophytes
8. Which plants lack xylem and phloem?
   mosses
9. Name a seedless vascular plant.
   ferns
10. Name the two groups of plants that lack pollen? How do their sperm cells travel?
    mosses + ferns, their sperm has flagella, swims to egg
11. List at least 4 plant adaptations to life on land.

True or False

12. F The spore is the agent of dispersal in the seed plants. the seed/fruit is
13. T Conifers are "naked-seed plants" because they lack fruit.
14. F The fruit consists of an embryo, nutritive material, and a protective coat. describes a seed
15. _____ The sporophyte generation is most conspicuous generation in Anthophyta..

16. F Flowering plants produce bisexual gametophytes. — pollen / embry sac — 2 separate gametophytes

17. F Cells walls are adaptations for life on land. algae have cell walls, therefore they are not specifically for life on land.

Alternation of Generations

The gametophyte produces gametes by mitosis. Following fertilization, the zygote divides by mitosis to develop into the sporophyte. The sporophyte produces spores by meiosis. The spores germinate and develop into the gametophyte.

Word bank:

Endosperm

Ovule coat

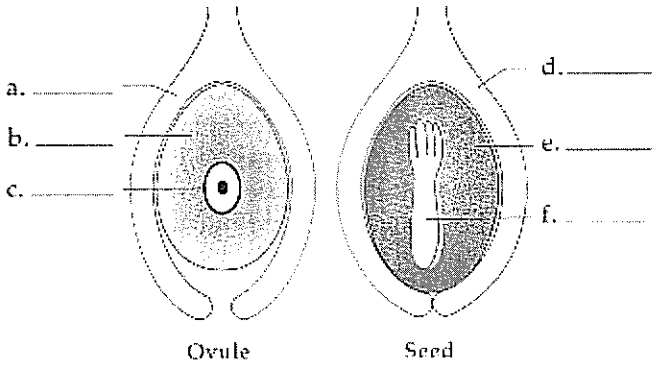
Seed coat

Megasporangium

Megaspore

Embryo

Label the parts in this generalized diagram of a gymnosperm ovule and seed. Indicate whether structures are diploid or haploid tissues.



Contrast monocots and dicots:

	Description of veins in leaves:	Flower parts in multiples of:
Monocots	parallel	3's
Dicots	net-lik	4's or 5's

Plant Transport Questions

1. The movement of xylem sap up a plant is called transpiration
2. The movement of phloem sap is called translocation
3. During transpiration, water moves from high to low water potential
4. During translocation, phloem sap moves from high to low pressure

5. Proton pumps in the plasma membranes of plant cells may
   a. generate a membrane potential that helps drive cations into the cell through their specific carriers.
   b. be coupled to the movement of K+ into guard cells.
   c. drive the accumulation of sucrose in phloem cells.
   d. be involved in all of the above.

6. Which of these is not a major factor in the movement of xylem sap up a tall tree?
   a. transpiration
   b. plasmodesmata
   c. adhesion
   d. cohesion
   e. tension

7. A plant cell with high turgor pressure is placed in a solution in an open beaker and gradually loses turgor pressure. Therefore, the water potential of the cells must have been higher than that of the solution. water goes from high to low ψ

8. Translocation (movement of phloem sap), occurs due to differneces in pressure. Pressure is greatest at the source and lowest at the sink.

9. At the source, how is the pressure created? as sugar is actively transported into phloem tissue, water follows.
10. At the sink, how is the pressure relieved? sugar diffuses out (b/c it is rapidly consumed at sink, so conc. is lower) and water follows.
11. Considering an animal cell (first group) and a plant cell (second group) placed in test solutions, which of the following choices gives the *correct* direction for water flow by osmosis?
    a. hypertonic→hypotonic; higher Y→lower Y
    b. hypertonic→hypotonic; lower Y P →higher Y
    c. hypotonic→hypertonic; lower Y →higher Y
    d. hypotonic→hypertonic; higher Y →lower Y
    e. One cannot tell unless told the Y p for the plant cell.