# Selected Review Questions Chapter 13

## 13.1

2. List the major characteristics of the plant kingdom. Eukaryotic, multicellular, tissues/organs, chlorophyll, cell walls of cellulose, autotrophic, sexual reproduction (in addition to some asexual methods)

3. What are the three general groupings of plant phyla? Seeded, vascular; seedless vascular; seedless non-vascular

4. Describe a characteristic of nonvascular plants that limits their size. They have no vascular tissues which means the ability to conduct nutrients is limited

7. If you examine a clump of moss, you will find that only some of the moss has sporophyte stalks and capsules. Why? About half are male so they do not produce gametophytes

## 13.2

2. Where are the sporangia of a fern located? Under the leaves/fronds

3. How are the life cycles of a fern and a moss similar? They both alternate sporophyte and gametophyte generations (alternate haploid/diploid cells)

## 13.3

1. Name and describe the two types of cones produced by conifers. Tell their relationship to each other. Pollen cones are usually male, small, and at the tip of branches; seed cones are small, green, immature cones with eggs that get fertilized by the male cones and then produce seeds

3. List several well-known families of conifers and describe each. The most common are yews (waxy with berries), cypresses (shurbs), redwoods (can be huge trees) and pines (common evergreens)

6. Seed plants are called the dominant vegetation of the earth today. In what ways are seed plants dominant over other types of plants? They cover more land area per plant, they are larger, more obvious, and the most helpful producers of oxygen and food

## 13.4

1. Describe and give the functions of the three major categories of plant tissues. Dermal tissues compose the outside of a plant; vascular tissues are xylem and phloem which transport water and nutrients; ground tissues conduct photosynthesis, give support, store food

2. Compare and contrast the structure and function of xylem and phloem. Xylem carries water upwards in bigger tubes; phloem carries water, sugar, and nutrients in smaller tubules downwards

3. What is the function of the meristematic tissue, and where is it located? It contains cells that divide and cause plant growth; it can differentiate into different kinds of tissues; it exists in root tips and buds, mostly

## 13.5

1. Differentiate between a) parallel and netted venation, b) pinnate and palmate venation, and c) simple and compound leaves.

2. Describe the stomata of a leaf and give their function. Stomata are small openings on the lower epidermis of a leaf; they open and close to let out water vapor using guard cells

4. Describe the process whereby leaves change color and fall in the autumn. In the fall, cells in the leaf begin to die in the abscission layer at the base of the petiole; the petiole breaks, cutting off the water supply to the leaf. Chlorophyll manufacture stops, and other pigments inside the leaf begin to show

6. Why is it essential that every cell in a leaf be near a xylem vessel, while it is not essential that every cell be near a phloem tube? Most cells in the leaf already have a food (sugar) supply from performing photosynthesis so they don’t need the phloem as much. The xylem supplies water and dissolved minerals that are needed by every cell that performs photosynthesis.

## 13.6

1. List the four primary functions of a root. Anchors the plant, absorbs water, transports absorbed substances, stores food if they are taproots

3. What is the function of root hairs? They reach in between soil particles and increase surface area, to obtain extra water

## 13.7

1. What are the major functions of a stem? Supports leaves; holds the xylem and phloem to conduct materials to leaves and roots for growth

5. Describe the formation of bark. The cork cambium produces flat, thin walled cells that die and form the outer bark; the vascular cambium produces phloem to form the inner bark

6. List two differences and two similarities of herbaceous monocot and dicot stems. Both have vascular bundles and lots of pith in their centers

## Vocabulary 13: (Type up here or turn in cards)

Vascular tissue, xylem, phloem

Rhizoid

Alternation of generations

Fern

Gymnosperm

Angiosperm

Monocot v Dicot

Cotyledon

Parts of a leaf: Epidermis, cuticle, palisade, mesophyll

Guard cell and stoma

Meristematic tissue/meristematic region

Elongation region

Vascular cambium

Cork and cork cambium

Woody v Herbaceous stem

Pith

Ground tissue

Venation types (parallel, netted, pinnate, palmate…)

Blade, petiole, node

Taproot v fibrous root system