# Selected Review Questions Chapter 14

## 14.1

1. Why won’t all plants grow equally well in the same conditions? Plants all require light, heat, nutrients, and water to grow—but different amounts of them

2. What are the 4 main uses of water in plants? Photosynthesis (which makes food), turgor pressure (to hold the plant up), hydrolysis to break down molecules, and translocation (to transport substances throughout the plant)

4. What causes nastic movements? Changes in turgor pressure, especially at the base of a petal or leaf

## 14.2

1. List three ways of replenishing the mineral content of the soil. Crop rotation, fertilizer, mulch

2. Explain how plants absorb minerals from the soil. Oxygen is absorbed through root hairs, oxygen helps produce ATP, ATP produces the energy necessary to pump necessary minerals across a concentration gradient into the plant

## 14.3

3. How do tropisms affect plants? List four examples of positive or negative tropisms. Tropisms are growth patterns caused by a concentration of hormone or auxin in certain regions of the plant; plants may grow towards the light (positive phototropism), against gravity (negative gravitotropism), towards a stake or beanpole (positive thigmotropism), and towards fertilized soil (positive chemotropism)

4. How do tropisms differ from nastic movements? Nastic movements are the result of turgor pressure changes while tropisms are the result of hormones; nastic movements do not have a direction while tropisms do

## 14.4

1. List several characteristics of light that are significant for plant growth. Intensity of light, direction of it, length of it

3. Summarize how a period of dormancy many help certain plants. It can give it a rest as well as protection from harsh elements

## 14.5

1. Why are some plants reproduced asexually for commercial purposes? To clone them; to preserve their desirable, inherited characteristics.

3. List several plants that are asexually reproduced by:

a) underground roots iris, bamboo, lilac, elderberry grass

b) underground stems. Tulips, hyacinths, daffodils, irish potatoes

6. Describe the grafting process. How does this differ from budding? Grafting is when a stem of one plant is planted with a root of another, and they mix; in budding, a bud is used instead of a stem, and often placed under the bark

## 14.6

2. Name the male reproductive structures of a flower: the anther and filament produce pollen in the stamen

3. Name the female reproductive structures of a flower: the stigma and style are part of the pistil, which connects down to the ovary and ovules within

4. Explain the difference between pollination and fertilization. Pollination is when pollen comes in contact with the stigma; fertilization occurs in the ovary when the pollen unites with the ovule and results in a seed which will grow into a fruit

5. Describe the process of fertilization in flowering plants. Pollen lands on the stigma; a pollen tube grows down the style, enters the ovary, and penetrates the ovule; a sperm unites with an egg and initiates the process of developing an embryo

6. List the basic parts of a seed, and the basic parts of the embryonic plant within the seed. Seed coat, hilum, micropyle, cotyledon

7. What three basic conditions must be met for a seed to germinate? Moisture, temperature, oxygen

## Vocab 14: (Type here or turn in flashcards)

Transpiration

Cohesion-Transpiration Theory

Turgor Pressure

Nastic Movements

Translocation

Hormone/auxin

Tropism (positive/negative, different kinds)

Photoperiodism

Short day plant v long-day vs day-neutral plants

Grafting, budding (asexual)

Parts of the flower (about 15 parts)

Pollination (the definition and the process)

Germination

Seed diagrams of monocot, dicot (hilium, epicotyl, radicle, etc)