**Exam 3 Study Guide**

Chapter 25

**Terrestrial Plants**

Advantages and disadvantages

Adaptations

**Alternation of Generations**

What does it mean?

Ploidy level of sporophyte and gametophyte

What do sporophytes produce? What do gametophytes produce?

**Apical Meristems**

What type of cells?

Where are they located in seedless plants?

**Waxy Cuticle**

How does it help the plant?

Where is it located?

**Sporopollenin**

How does it help the plant?

Where is it located?

**Seedless nonvascular plants**

Bryophytes

Gametophyte dominant. Haploid or diploid? What does it produce? How?

Sporophyte dependent upon gamtetophyte. Haploid or diploid? What does it produce? How?

Hornworts, liverworts, mosses

Thallus and rhizoid – no true leaves, stems, roots

Fertilization is water dependent

Antheridium produce what?

Archegonium produce what?

Zygote is diploid/haploid?

What type of spores are produced?

**Seedless vascular plants**

Lycophytes and monilophytes

Sporophyte is dominant. Haploid or diploid? What does it produce? How?

Has roots

Has leaves – microphylls or megaphylls

What are sporophylls?

Has vascular tissue

Fertilization is water dependent

Sporangium on sporophyte produces what? How?

What type or spores are produced?

Megasporangium produce?

Microsporangium produce?

Chapter 26

**Seed plant adaptations**

Sporophyte dominant

Fertilization is not water dependent

Heterosporous

Seeds

Pollen

**Gymnosperms**

Sister taxa of angiosperms

Naked seeds (no fruits)

Can be monecious or dioecious

Wind pollinated

Tracheids in xylem

**Gymnosperm life cycle**

Heterosporous

Male pollen cones and female ovulate cones

Microsporangium produce male microspores which becomes male gametophyte which produces pollen

Megasporangium produce female megaspores which becomes female gametophyte which produces egg

Pollen contains two cells – generative cell (undergoes mitosis to produce sperm) and pollen tube cell (grows into pollen tube)

Seed has three generations of tissue: parent sporophyte, gametophyte, new sporophyte

**Angiosperms**

Fruit and flowers

Can be monoecious or dioecious

Pollinated by wind, insects, animals

Xylem has vessel cells

Flower structure

Carpel and stamen

Ovary contains ovules (megasporangium)

Anther contains microsporangium

**Angiosperm life cycle**

Hetersporous

Microsporangium produce male microspores which becomes male gametophyte which produces pollen

Megasporangium produce female megaspores which becomes female gametophyte which produces egg

 Egg undergoes mitosis three times to make 7 cells and 8 nuclei

Pollen contains two cells – generative cell (undergoes mitosis to produce sperm) and pollen tube cell (grows into pollen tube)

Double fertilization – one sperm fuses with egg, other sperm fuses with polar nuclei

Fruit

Monocots, what are characteristics?

Dicots, what are characteristics?

Angiosperm coevoluation with insects/animals

Plant biodiversity

Chapter 30

**Plant organ systems**

Shoot system and root system

Meristematic versus nonmeristematic tissue

Tissue types (dermal tissue, ground tissue, vascular tissue)

Stem anatomy and modifications

Root anatomy and modifications

Leaf anatomy and arrangement

Primary versus secondary growth

Chapter 32

This chapter is mostly a recap of angiosperm/gymnosperm reproduction

Pollination versus fertilization

Self-pollination and cross-pollination

Asexual reproduction