Name _____ Perry – AP Bio

Biodiversity Assignment

This assignment will provide you with an understanding of the evolutionary relationships between organisms and the origin of the diversity of species on earth.

CHAPTER 27

PART 1. Directions: All answers are to be completed on your own and neatly written.

1. How common are prokaryotes on earth?

biomass = 10x eukaryotes

amount in handful of soil > # people who have ever lived

2. How do bacterial cell walls differ from plant cell walls?

3. How does the cell wall aid in classifying the bacteria?

4. List the methods bacteria use to locomote.

5. Give an example if a stimulus and describe how bacteria react to that stimulus (taxis).

6. How do bacteria typically reproduce?

binary fission - cell splits

Adapted from Kim Foglia – credit: www.ExploreBiology.com

7. List three methods that can modify bacteria genetically.

a. _____

b. _____

c. _____

8. Identify and briefly define the four nutritional categories of bacteria.

d. _____

e. _____

f. _____

g. _____

9. How has molecular systematics lead to classifying prokaryotes into two domains?

_____

_____

_____

10. What is the ecological significance of prokaryotes?

decomposition - chemical/nutrient cycles

symbiosis - mutualism, parasitism

Chapter 28

1. (p. 576) Why are Protists said to be the most diverse of all eukaryotes? Give specific examples.

nutritionally diverse, different methods of reproduction
↳ mixotrophs ↳ asexual or sexual

2. (p. 576) Describe serial endosymbiosis.

cells (prokaryotes) engulfed other cells, leading to modern organelles (mitochondria, chloroplasts)

3. (p. 575-577) Why do most systematists currently working on eukaryotic relationships consider Kingdom Protista and the five kingdom system obsolete?

4. (p. 586) If brown algae can form specialized tissues like that of plants, why are they *not* considered the ancestor of modern plants?

5. (p. 590) Describe the series of events (beginning more than 1 billion years ago) that gave rise to modern land plants.

Chapter 29-30

1. (p.600) List and describe the distinctive traits shared between charophytes and land plants.

What advantages do the following structures/features give plants that allow them to survive and thrive on land?

2. (601) Sporopollenin

3. (p. 603) Apical meristems

4. (p. 604) Vascular tissue

moves nutrients to all parts allowing for more growth

5. (p. 606/618) Seeds/pollen

6. (p. 625/626) Flowers/fruit

Chapter 31

1. (p. 636) How do fungi acquire nutrients?

   _____

2. (p. 637) How do the cell walls of fungi differ from those of plants?

   _____

3. (p. 636-637) How do the traits above support the placement of fungi closer to animals than plants on a phylogenic tree?

   _____

   _____

   _____

Chapter 32

(1-3) Briefly describe how the following characteristics define animals as a group.

1. (p. 654) Nutritional Mode

heterotrophic - ingest food + use enzymes to digest "inside" the body cavity

2. (p. 654-655) Cell Structure and Specialization

multicellular, lack cell walls, cells held together by structural proteins

* nerve + muscle tissue

3. (p. 655) Reproduction and Development (on a genetic basis, vocabulary is not necessary here)

most are sexual, diploid adult, contain Hox genes

4. (p. 659) Describe the two types of symmetry.

5. (p. 659) What is the significance of cephalization as an evolutionary trend?

6. (p. 659-660) Discuss how animals are grouped based on body cavity. Include relevant vocabulary.

Chapter 33

1. (p. 670) How does the structure of a sponge relate to its method of nutrition.

2. (p. 674) What are some evolutionary advancements seen in Platyhelminthes?

protonephridia - elimination of nitrogenous waste
eyespots - detect light

3. (p. 676) What is unique about the structure and function of the pseudocoelom (as seen in Rotifers)?

4. (p. 680-682) What is the evolutionary significance of the coelom (as seen in Annelids)?

5. What is the importance of segmentation?

allows for better coordination of movement and function of parts

6. Identify the characteristic that were most significant to Arthropod success.

Ch. 34

1. (p. 699-700) What are the four characteristics of chordates?

2. (p. 710) In the evolution of vertebrates, identify the significance of being a tetrapod.

3. (p. 713-714) What is the significance of the amniotic egg and amniotes?