Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Fred and Theresa Holtzclaw

AP Biology

Chapter 23—Broad Patterns of Evolution

***23.1 The fossil record documents the history of life***

8) What do we *not* know from analyzing rock strata?

9) How are rocks and fossils dated?

***23.2 The rise and fall of groups of organisms reflect differences in speciation and extinction rates***

15) Define *continental drift*. How can continents move?

16) See if you can answer each of these short questions:

a. What is the *San Andreas* Fault?

b. What caused the uplift of the Himalayas?

c. How can a fossil freshwater reptile be found in both Brazil and west Africa, areas separated today by a wide expanse of ocean?

d. Why are no *eutherians* (placental) mammals indigenous to Australia?

17) A *mass extinction* is the loss of large numbers of species in a short period, caused by global environmental changes. A second important mass extinction is the *Cretaceous mass extinction* that happened about 65 mya. Everyone’s favorite group, the dinosaurs, was lost, along with more than half of all marine species. What caused it?

19) What are *adaptive radiations*?

a. Why did a large-scale adaptive radiation occur after each mass extinction?

***23.3 Major changes in body form can result from changes in the sequences and regulation of developmental genes***

b. Explain what the field of evo-devo is doing.

20) What is an evolutionary change in the rate or timing of developmental events?

21) *Homeotic genes* are master regulatory genes that determine the location and organization of body parts. Mutations in a *homeotic gene* can have a profound effect on morphology. Homeotic gene mutations can contribute to the potential for evolutionary change. The *Hox* genes are one class of homeotic genes. What do they control?

22) When a structure that has evolved in one context becomes co-opted for another purpose, this event is called

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***23.4 Evolution is not goal oriented***

No questions for this section, but you’ll want to read through it.