**Chapter 23 Question Set**

1. Name the 5 hallmarks shared by all chordates, and explain the function of each.

2. In debating the question of chordate origins, zoologists eventually agreed that chordates must have evolved within the deuterostome assemblage rather than the protostome group as earlier argued. What embryological evidences support this view?

3. Amphioxus long has been of interest to zoologists searching for a vertebrate ancestor. Explain why amphioxus captured such interest and why it no longer is considered to resemble closely the most recent common ancestor of all vertebrates.

4. Both the sea squirts and lancelets are filter-feeding organisms. Describe or illustrate the filter-feeding apparatus of a sea squirt and explain in what ways its mode of feeding is similar to and different from, that of amphioxus.

5. Read “Derivatives of Endoderm: Digestive tube and the Survival of Gill Arches”, on page 173 (181 in newer edition) of the Zoology text. After reading the section, write 2 true/false questions and 1 multiple choice question. These questions may appear on the Chordate quiz so make them tough!

6. Read the article “The Genes behind the Cambrian Explosion”, Explain the process involved in the formation of a dorsal nerve cord verses a ventral nerve cord.

**“YOUR INNER FISH” EXCERPT PAGES 86-96.**

7. List in detail the structures that form from a human embryos arches.

8 Summarize the profound idea “discovered” by Goethe and Oken in the early 1800’s.

9. Describe the human birth defect known as “First Arch Syndrome”.

10. Make a table and compare/contrast structures that develop from the 4 arches in sharks and humans.

11. Describe the characteristics that we share with amphioxus. What are the structures in our body that relates to the notochord of amphioxus?

12. What is the fossil record telling us about early chordate characteristics?