Name	
Date	Per

## CHAPTER 26 STUDY QUESTIONS -Phylogeny & the Tree of Life

- 1) What is systematics? How is it used to develop phylogenetic trees?
- 2) Label each taxonomic category in the diagram shown here, and then give the one that applies exclusively to the panther at the top. (HINT: see fig. 26.3)
- 3) How much of the panther's classification do WE (humans) share?
- 4) Define a **CLADE**. Distinguish between: monophyletic, paraphyletic, and polyphyletic groups. (you may use a diagram to illustrate)



- 5) A) Distinguish between shared **primitive** characters and shared **derived** characters.
- B) Explain why, for mammals, hair is a shared derived character, but a backbone is a shared ancestral character.
- 6) What are **MOLECULAR CLOCKS**? Explain how **MOLECULAR CLOCKS** are used to determine the approximate time of key evolutionary events.
- 7) What is the relationship between the *ingroup* and the *outgroup* in classification?

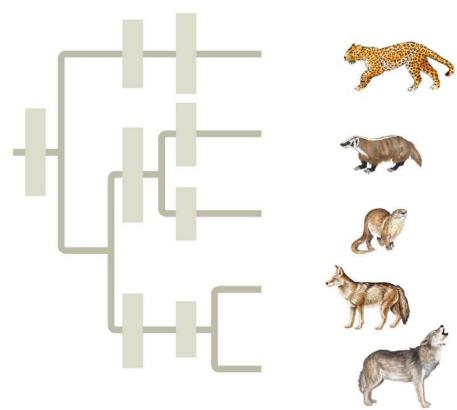
8) What does the phylogenetic tree in Figure 26.4	indicate about the evolutionary relationships of the
leopard, badger, and wolf?	

<ol><li>Decide whether each of the following pairs of</li></ol>	of structures most likely	represents ANALOGY	or or
<b>HOMOLOGY</b> and explain your reasoning:			

A) a porcupine's quills and a cactus's spines:				
B) a cat's paw and a human's hand:				
C) an owl's wing and a hornet's wing:				

10) Explain how comparing proteins of two species can yield data about the species' evolutionary relationship.

- 11) Label the following diagram. (see Figure 26.4)
- -Circle the most recent common ancestor of badgers and otters label it A
- -Circle the most recent common ancestor of cats and dogs label it B
- -Circle the most recent common ancestor of coyotes and badgers label it C
- -Circle the most recent common ancestor of coyotes and wolves label it D



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