

Biology  
Second semester term list and sample questions

Name \_\_\_\_\_ Hour \_\_\_\_\_

1. If two organisms are in the same kingdom, does it necessarily follow that they are in the same order?
2. Why are organisms in the same phylum necessarily in the same kingdom?
3. Was the last common ancestor of two species which are in the same genus more recent or longer ago than two species in the same family but different genera?
4. Draw a cladogram which relates these four species.

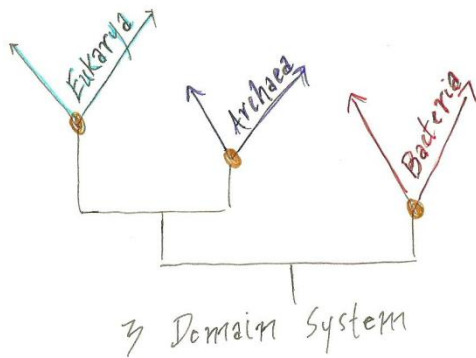
	<u>Dog</u>	<u>Island fox</u>	<u>Yellow slug</u>	<u>Elephant cactus</u>
Domain	Eukaryote	Eukaryote	Eukaryote	Eukaryote
Kingdom	Animal	Animal	Animal	Plant
Phylum	Chordata	Chordata	Mollusc	Angiosperm
Class	Mammal	Mammal	Gastropod	Eudicot
Order	Carnivore	Carnivore	Limacoid	Caryophyllales
Family	Canid	Canid	Limacidae	Cactus
Genus	Canis	Urocyon	Limax	Pachycereus
Species	C. lupus	U. littoralis	L. flavus	P. pringlei

5. What are two differences between eukaryotic cells and prokaryotic cells?
6. Describe how natural selection operates.
7. What are the three conditions necessary for natural selection to operate?
8. What are some characteristics which distinguish plant cells from animal cells?

9. What are archaea?

10. How many domains of life are there?

11. The term prokaryotes includes both bacteria and archaea. According to the diagram below, would the term prokaryote be monophyletic?



12. What are two characteristics of mammals?

13. How might one organism create a niche for another organism?

14. Give an example of a jawed vertebrate.

15. What phylum of organism is yeast?

16. How does the greenhouse effect trap heat?

17. What are three causes of extinction which humans are responsible for?

18. What is the difference between trophic levels and a food web?

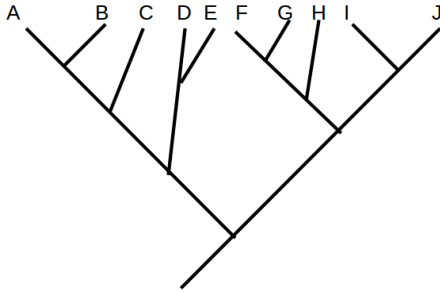
19. Describe the carbon cycle.

20. Where do plants get the carbon they use to build their structures? Where do humans get the carbon they use to build their structures?

21. Give an example of an invasive species.

22. Give an example of habitat destruction.
23. Do you think it is weird that Goofy is a dog and Pluto is a dog, but only Goofy can talk? Explain.
24. Why would a sample of DNA contain approximately equal amounts of adenine (A) and thymine (T)?
25. What is the difference between DNA polymerase and RNA polymerase?
26. Which would you expect to have more mutations in it, the leading strand or the lagging strand?
27. What enzyme makes an RNA copy of a DNA template, to make protein?
28. There is no question 28. Take a deep breath, you're doing great.
29. If you were changing the structure of a protein, would you likely change the exons or the introns, and why?
30. Why are different genes active in different cells of a single multicellular organism?
31. Why are highly conserved regions of the genome often used for primers?

32. Which pair of organisms have a more recent last common ancestor, A and C or E and F?



33. What group of animals is warm blooded, has fur, has live birth, and nurses young with milk?

34. What makes monotremes different from other mammals?

35. Describe the differences between monocots and dicots and some of the features which can be used to distinguish them.

36. What is the greenhouse effect?

37. What are major causes of extinction or the loss of species biodiversity?

38. How is species biodiversity different from ecosystem biodiversity?

39. If NSAA had an animal mascot, what phylum would it belong to and why?

40. Essay: Why is should people study biology even if they don't plan to become a science major? Give two different examples where biological knowledge or experimentation will be important in your life, even if you don't study it formally in your higher education.