

GVZ practice questions test 2 2017

1. List and describe (function, anatomy) some synapomorphies of Amphibia.
2. List and describe (function, anatomy) some synapomorphies of Gymnophiona.
3. List and describe (function, anatomy) some synapomorphies of Anura.
4. How would you distinguish a caecilian from an amphisbaenid?
5. List and describe some intromittent sex organs (penises) and other structures used for internal fertilization by different Tetrapod taxa.
6. List and contrast the tongue projection anatomy of taxa that project the tongue in feeding.
7. Venomous coral snakes and harmless king snakes live in the same areas and both display similar external color patterns of red, yellow, and black rings around the body. How would you test whether this is a case of Batesian mimicry? What results would support the idea of Batesian mimicry? (hint: how did Shawn Kuchta test for Batesian mimicry in salamanders?)
8. Describe courtship in salamanders.
9. What is paedomorphosis? Give an example of paedomorphosis in salamanders. Can you think of any examples of paedomorphosis outside of salamanders?
10. What is a urostyle?
11. What patterns of Temperature dependent sex determination are seen in amniote taxa? What is the Charnov-Bull hypothesis for the evolution of TSD? How did Werner and Shine test this hypothesis? What did they find?
12. List one fully aquatic taxon from Caudata, Gymnophiona, and Anura.
13. In the movie Talladega Nights, Cal Naughton Junior's photogenic alter ego is named:
 - a. CNJ
 - b. Calinator
 - c. Naughty
 - d. NOT
 - e. Mike Honcho
 - f. Cole Trickle
 - g. Jerkass
14. Discuss some causes of amphibian declines.
15. How do geckos cling to ceilings?
16. Describe changes undergone by frogs in the development from tadpole to adult.

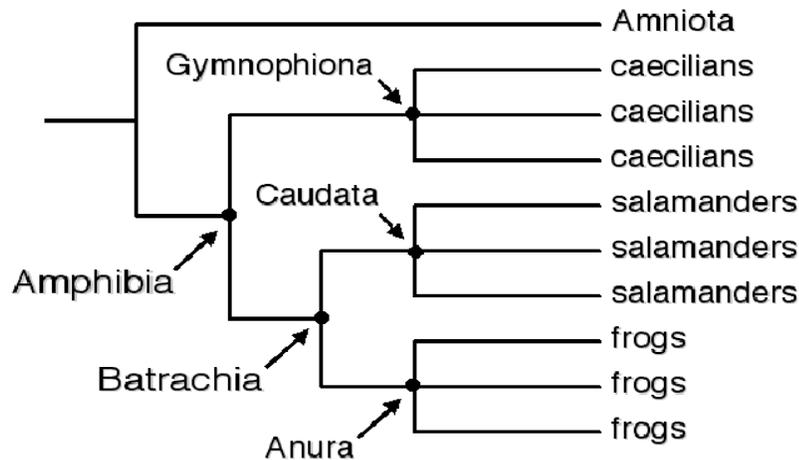
17. Which has been evolving longer, tuataras or humans? Explain your answer.
18. Draw a phylogenetic tree of turtles, *Plethodon*, Gymnophiona, *Amphisbaena*, *Crotalus*, *Varanus*, *Bufo*, humans, *Iguana*, *Ascaphus*, *Rana*, and tuatara.
19. List and describe the functions of the membranes that make up the amniotic egg.
20. Compare and contrast skull fenestration patterns in amniotes. Which taxa possess which skull types?
21. Describe the natural history of tuataras, and how they differ anatomically from members of Squamata.
22. List and describe some synapomorphies of Squamata. How do these characters vary (i.e., how are they further evolutionarily modified) within Squamata?
23. Describe the anatomy and taxonomy of coelacanth.
24. What group of lizards can run across water? Which group can glide?
25. Rank the following groups in terms of number of species:
lungfish, *Latimeria*, Squamata, *Ascaphus*, snakes, Gymnophiona, frogs, Caudata, *Sphenodon*.
26. Describe some traits that vary among caecilian species.
27. List some genera of salamanders.
28. Remember that movie where the baby marine iguana was running away from those snakes in the Galapagos? Was that cool?
 - a. Yes, that was cool.
 - b. No. (I'm being ironic. Of course it was cool.)
 - c. No. But I only answered "no" because today is Opposites Day where everything I say is the opposite of what I mean. I hope to do poorly on the upcoming GVZ test.
29. What is amplexus?
30. How do male frogs signal for a mate?
31. Discuss tongue anatomy and function in squamates.
32. List some areas where frogs deposit eggs.
33. What aspects of the skull allow alethinophidian snakes to swallow such large prey?
How do snakes swallow large prey (that is, what movements of the body and/or the

head cause swallowing in alethinophidian snakes)? Contrast swallowing in scolecophidian snakes versus swallowing in alethinophidian snakes.

34. Describe parental care in an amphibian species of your choice.

36. Assuming the following phylogenetic tree, give a node-based definition for the group name Batrachia.

Give a stem-based definition for a taxon that includes caecilians and frogs but excludes *Sphenodon*.



37. The chytrid fungus has decimated populations of frogs in Central America, in many cases causing catastrophic extinction of several species in a community. What steps are being taken to stave off frog extinction from this fungus?

38. Discuss the conservation implications of temperature-dependent sex determination.

39. Contrast the circulatory system of an actinopterygian with the circulatory system of a lizard.

40. Contrast feeding on land versus feeding under water. What anatomical characteristics are important in each case?

41. Discuss the biology of the coelacanth, including its taxonomy.

42. What are zygopophyses? Why are these important for the evolutionary transition to land?

43. Compare and contrast venom delivery systems in squamates.

44. List some reptiles that glide, and describe the anatomy that enables gliding.

45. Give vertebrate examples of homology in behavior, morphology, and molecules.

46. Give vertebrate examples of convergence/homoplasy in behavior, morphology, and molecules.

47. Describe the evolution of venom in squamates.

48. List some genera of squamates.

49. Identify the following skulls as amphibian, lizard, or Actinopterygian.

