

Holt Invitational Herpetology Test - ANSWER KEY

1. Caiman skull
 - This skull came from a subadult or adult female.
 - a. To which family does this species belong?
Alligatoridae
 - b. Where does it occur in the US?
Florida. Extra point for "it was introduced"
 - c. The common name of this animal includes the adjective "spectacled."
Why is this animal considered "spectacled?"
Bony ridge between the eyes make it look like it is wearing a pair of glasses
2. *Graptemys*
 - a. What is the genus of this specimen?
Graptemys
 - b. What life stage is this specimen?
Juvenile
 - c. What is the origin of (or reason for) the common name of this genus?
The lines on the carapace and body resemble contour lines on a map.
 - d. Why do adult males of this genus have long claws? In other words, for what do they use the claws?
They wave these in front of females' face during courtship
3. *Apalone*
 - a. To which family does this specimen belong?
Trionychidae
 - b. Where do specimens of this species lay their eggs?
In flask-shaped holes that they dig in sandy areas, near bodies of water
 - c. In areas near cities or suburban areas, very few babies of this species survive. Why?
Nest predation by raccoons
4. *Chrysemys picta*
 - a. Identify the genus of this specimen based on its shell.
Chrysemys (you can tell by the line "painted" down the shell)
 - b. How are members of this genus distinguished from other genera within this family? Provide at least two characteristics. You will receive an extra point for each valid characteristic above two (up to three extra, five in total).
They have yellow eye spots, red stripes on legs, a stripe down the shell, they have a smaller adult size than most other genera in the family, hatchlings overwinter in the nest
 - c. How many species are in this genus?

One (it is a monotypic genus, though there are many recognized subspecies)

5. *Crotalus viridis*

- a. Identify the genus of this specimen.
Crotalus
- b. What type of reproductive mode is observed in members of this genus?
Ovoviviparity
- c. What is the geographic range of this genus in the United States?
It is found across the entire United States (all but four states)
- d. Name one way that humans threaten members of this genus. Name up to two additional negative human impacts on this genus for extra points.
Rattlesnake roundups, road mortality, habitat fragmentation and degradation, climate change

6. *Diadophis punctatus*

- a. What is the genus of this specimen?
Diadophis
- b. Where would you expect to find members of this species during the daytime?
Under cover objects in a forest
- c. What is the main defensive behavior observed in this species?
It turns parts of its body to expose the brightly colored (yellow, orange, or red) belly
- d. This species is slightly venomous, but can generally be safely handled by humans. Besides the venom being relatively weak, why is it unlikely that this species will bite a human?
It is opisthoglyphous (rear-fanged)

7. *Ophisaurus*

- a. Identify the genus of this specimen.
Ophisaurus
- b. How are members of this suborder distinguished from the other suborder within the order Squamata? Provide two characteristics
Unlike snakes, the vast majority of lizards (including legless ones) have eyelids and external ears.
- c. What is the meaning of the common name of this species? For one extra point, explain with the Latin genus means.
"Glass lizard" - It has a tendency to shed (autotomize) its tail, so it is thought to be fragile like glass. Extra point for saying that *Ophisaurus* means snake lizard.

8. *Phrynosoma*

- a. Identify the genus of this specimen.
Phrynosoma
- b. What is the life stage of this individual?
Juvenile
- c. What is the main defense behavior of many species within this genus?
They squirt blood out of their eyes.
- d. In what type of climatic region would you expect to find members of this genus?
Arid or semi-arid regions.

9. *Anolis*

- a. Identify the genus of this specimen.
Anolis
- b. Is this species (select one or more):
 - i. Fossorial
 - ii. **Arboreal**
 - iii. Semi-aquatic
 - iv. Fully aquatic
- c. Why are the dewlaps of species in this genus different colors?
This serves as a species-recognition signal so that females select mates within their species.
- d. How are males of this species distinguished from females? Provide two distinct morphological and/or behavioral characteristics. You will receive an extra point for each valid characteristic beyond two (up to three extra, five in total).
Males have a dewlap, sometimes a raised crest along the body, they tend to be larger and more aggressive, and they perform head bobs and pushups.

10. *Scincid*

- a. Identify the family of this specimen.
Scincidae
- b. True or false? Members of this family occur in Michigan. For an extra point, state how many species of this family occur in Michigan.
True. Extra point for "one species."
- c. Approximately how many species are in this family worldwide?
 - i. **1500**
 - ii. 500
 - iii. 100
 - iv. 50

11. *Amphiuma*

- a. Identify the genus of this specimen.
Amphiuma
- b. What characteristic is used to distinguish between species within this genus?
The number of toes.
- c. What term is used to describe the limbs of members of this genus, which are not actually used to walk on?
Vestigial
- d. How do members of this genus survive in seasonally dry wetlands? For one extra point, state where exactly they spend these periods.
They aestivate. Extra point for "inside crayfish holes."

12. *Notophthalmus viridescens*

- a. Identify the family of this specimen.
Salamandridae
- b. What is the name of the toxin present in the skin of this species? For an extra point, name the animal for which the toxin was named.
Tetrodotoxin. Extra point for "puffer fish."
- c. Why is this species considered to display a "triphase" lifecycle?
Larvae are aquatic, as juveniles they live as terrestrial efts, then return to the water as adults

13. *Hemidactylium scutatum*

- a. Identify the genus of this specimen.
Hemidactylium
- b. What is one identifying feature of this genus? Give one more feature for an extra point.
Checkerboard (black and white) belly, four toes on hind feet (extra point if they give both)
- c. True or false? The young of this species exhibit direct development.
False - larvae are aquatic

14. *Plethodon cinereus*

- a. Identify the genus of this specimen.
Plethodon
- b. Describe the life cycle of this genus.
They are direct developers. After the female collects male spermatophores, she lays eggs under cover. These hatch directly into terrestrial salamanders (direct development).
- c. The average lifespan of members of this genus in captivity is:
 - i. 1 year
 - ii. 5 years
 - iii. **25 years**

iv. 40 years

15. *Ambystoma laterale*

- a. Identify the family of this specimen.
Ambystomatidae
- b. This species is part of a unisexual species complex. What is the name of the type of reproduction used in this species complex?
 - i. sexual reproduction
 - ii. arrhenotoky
 - iii. kleptogenesis**
 - iv. protandry
- c. What is the geographic range of this species complex?
Southeastern Canada, Northeastern and north Midwestern US

16. *Scaphiopus holbrookii*

- a. Identify the family of this specimen.
Scaphiopodidae
- b. Where do members of this family spend the majority of their lives?
Underground - they are fossorial and only really come up to breed during heavy rain
- c. Members of this family exhibit developmental plasticity. Describe this phenomenon.
Larvae develop faster and metamorphose at a smaller size if ponds dry up faster.

17. *Anaxyrus quercicus*

- a. Identify the family of this specimen.
Bufonidae
- b. What is the enlarged throat of this specimen called? What is it used for?
Vocal sac - resonating chamber for male advertisement call
- c. About how many species have been described within this family worldwide?
 - i. 1500
 - ii. 500**
 - iii. 100
 - iv. 50

18. *Pseudacris crucifer*

- a. What is the genus of this specimen?
Pseudacris
- b. What is the explanation of the common name of this species?
Spring peeper - Its call sounds like a peep and it calls in the spring (and fall)

- c. How is this genus differentiated from the other North American genera within this family? Provide one characteristic. Provide a second characteristic for an extra point.
It has triangular toepads and it has a small size. (extra point if both)

19. Cleared and stained – *Plethodon jordani* and Gekkonid

- a. These are cleared and stained specimens of two different species.
What is the Order of specimen A?
Squamata
- b. What is the Order of specimen B?
Caudata
- c. What is the name of the process by which the tails of these specimens became fragmented (broken)?
Autotomy