



*Exploring the World of Science*

## Herpetology

2018 Division B

### University of Minnesota Golden Gopher Invitational

This exam will consist of three portions, 25 points each for a total of 75 points. You will be asked to identify pictures of different specimens as listed on the official National 2018 Science Olympiad Herpetology list and to answer some related questions.

Tie breaker questions are available at the end, and in the event of a tie, they will be used first, followed by reverse grading. It is, therefore, to your advantage to finish the exam.

**Section 1: \_\_\_\_\_/25**

**Section 2: \_\_\_\_\_/25**

**Section 3: \_\_\_\_\_/25**

**Tie Breakers: \_\_\_\_\_/3**

**Total: \_\_\_\_\_/75**

**Section 1 (25 points)**

\*Note: ensure your picture corresponds to the letter of specimen you are filling on your sheet.

A.

1.) Identify the specimen by genus and by common name. **(2 points)**

**Genus: Charina; Common Name: Rubber Boa**

2.) What is the general geographical location this specimen can be found? **(2 point)**

**North America (accept: in North America, from Canada to Mexico)**

B.

1.) The shape of this specimen's tail indicates that it likely dwells in what habitat? **(2 points)**

**Aquatic**

2.) Based on the outer appearance of this specimen and your answer above, what family does this specimen likely belong to? **(1 point)**

**Hydrophiidae**

3. Except for one species, the young in this family are born in what manner? **(2 point)**

**Ovoviviparous (accept: young are born live; embryos in eggs remain in the maternal body until ready to hatch)**

C. This is a drawing of a cross section of a specimen of snake.

1. This body shape is characteristic of what genus of snake? Give the common name as well. **(2 points)**

**Genus: Elaphe; Common name: rat snake**

2. These snakes tend to have rows of small, curved teeth, which serves what purpose? **(2 points)**

**Help fix prey and prevent them from escaping once caught**

D. Be careful when answering this question

1. Identify first the family, then the genus of this specimen. **(2 points)**

**Family: Anguidae; Genus: Ophisaurus**

2. Name two features that make this specimen distinctively *Lacertila*. **(2 points)**

**Possible answers: Movable eyelids, external ear openings, shape of head (accept specific shape description)**

3. Name the characteristic defense mechanism of this specimen to avoid predation. **(2 points)**

**Tail may “drop” from the body and remain mobile (accept, the tail breaks into pieces “like glass”)**

E.

1. Which of the snakes (1, 2, 3, or 4) does not belong in the same family? **(3 points)**

**#3**

2. Which snake or snakes (1, 2, 3, or 4) is harmless? **(3 points)**

**#1, 2, 4**

**Section 2 (25 points)**

A.

1. Provide the family and common name of the specimen shown. **(2 points)**

**Family: Testudinidae; Common name: tortoise**

2. What are the names of the dorsal and ventral parts (respectively) of the specimen's shell? **(2 points)**

**Dorsal: carapace**

**Ventral: plastron**

B.

1. Provide the family and common name(s) of the specimen shown. **(2 points)**

**Family: Kinosternidae; Common name: mud or musk turtle**

2. Why was the specimen given this particular common name(s)? **(2 points)**

**The musk turtle releases strong smelling musk from glands underneath the rear of its shell when disturbed**

3. What is a distinguishing bodily feature (excluding primary sex characteristics) that separates males and females of this specimen? **(2 points)**

**Males tend to have longer tails**

C.

1. Give the family and common name of the specimen shown. **(2 points)**

**Family: Trionychidae; Common Name: Soft-shelled turtles (accept: pancake turtle)**

2. The distinguishing feature between this specimen and other specimens of the order *Chelonia* is: **(2 points)**

**The carapace is light and pliable (accept equivalent answers)**

3. The shape of the specimen's snout suggest that it dwells in what kind of habitat? **(1 point)**

**Aquatic**

D.

1. Name the main distinguishing feature between this specimen and the tortoise. **(1 point)**

**Sea turtles cannot retract their heads into their shells**

2. Name two characteristics that make this specimen suitable for marine life. **(2 points)**

**Flipper-like forelimbs; flat, streamlined wide round shell;**

3. Describe how temperature affects the hatching sex of the offspring of this specimen. **(2 points)**

**Higher temperatures produce females.**

**Lower temperatures produce males.**

E.

1. Classify the top and bottom pictures by family. **(2 points)**

**Top: Crocodylidae  
Bottom: Alligatoridae**

2. Name three ways to distinguish crocodiles from alligators **(3 points)**

**Possible answers (but not limited to):**

- **Crocodiles have a v shaped snout while alligators have a u shaped snout**
- **Crocodile teeth are exposed all along the jawline in an interlocking pattern when the jaw is closed; an alligator's lower teeth are hidden when the jaw is closed**
  - **Alligators have darker skin**
  - **Crocodiles are longer in length**

### **Section 3 (25 points)**

A.

1. Give the genus and common name for the specimen shown. **(2 points)**

**Genus: Acris; Common name: cricket frog**

2. This particular specimen's toes have a distinguishing characteristic. Name this characteristic. **(1 point)**

**The toes have no toe pads**

3. The breeding season(s) of this specimen is(are) **(2 points)**

**Spring and summer**

B.

1. Give the family name and common name for the species shown. **(2 points)**

**Family: Dicamptodontidae; Common name: giant salamander**

2. What is one ability this particular family possesses which distinguishes it from other families of the same order? (1 point)

**Dicamptodontidae possess vocal abilities  
(Croak is similar to the sound of a barking dog)**

3. Describe the habitat of the larvae and the habitat of the metamorphosed adult (2 points)

**Larvae inhabit springs and streams (watery environment)  
Adults inhabit forested areas (under rocks, bark, or stones; forest floor)**

C.

1. One of these is not like the others. Name the specimen (#1, 2, 3, 4) that does not belong in the same family as the other shown. (1 point)

**#4**

2. For the specimen you answered above, what physical characteristics make it suitable for its habitat? (1 points)

**Possible answers: external gills, eel-like tail, lack of hind limbs**

3. Which specimen(s) shown lack lungs? (3 points)

**#1, 2, 3**

D.

1. Name the family and common name of the specimen shown (2 points)

**Family: Scaphiopodidae; Common name: spadefoot**

2. What habitat does this specimen inhabit, and what characteristic of the specimen's feet helps it thrive in this habitat? (2 points)

**Habitat is terrestrial or underground  
Keratinous protrusions on the feet help it dig soil; webbed feet**

3. What geographical location is this family of specimen usually found? (1 point)

**North America**

E

1. Name the family and common name of the specimen shown. (2 points)

**Family: Rhyacotritonidae; Common name: torrent or seep salamander**

2. The habitat of the specimen shown is: **(1 point)**

**Fast moving brooks or streams, temperate forests**

3. The general snout vent length of members belonging to the same family as the specimen shown is: **(2 points)**

**Around 6 cm maximum (accept close values as there is variation in body size)**

**Tie Breakers (1 point each)**

Emydoidea is found to be able to reproduce until they are how old?

**80-90 years**

Microhylidae of Australia and New Guinea bypass the tadpole stage of development. The best explanation for this adaptation is?

**Allows eggs to be laid on trees.**

Specimens in the genus *Crotalus* have what mode of reproduction? (e.g. do they lay eggs?)

**Give birth to live young (accept equivalent)**