***Animal Diversity, 8e* (Hickman)**

**Chapter 17 The Early Tetrapods and Modern Amphibians**

1) Tetrapods originated in the \_\_\_\_\_\_\_\_ period.

A) Permian

B) Cambrian

C) Carboniferous

D) Devonian

E) Silurian

Answer: D

Section: 17.01

Topic: Devonian Origin of Tetrapods

Learning Objective: 17.01 Describe the best hypotheses for explaining from key fossils how the ancestral tetrapod body plan first evolved in the Paleozoic Era.

Bloom's: 1. Remember

Gradable: automatic

2) The term "tetrapods"

A) refers to the organisms that form the superclass Tetrapoda.

B) includes the amphibians and amniotes.

C) does not include the fish.

D) includes humans.

E) All of these choices are correct.

Answer: E

Section: 17.01

Topic: Devonian Origin of Tetrapods

Learning Objective: 17.01 Describe the best hypotheses for explaining from key fossils how the ancestral tetrapod body plan first evolved in the Paleozoic Era.

Bloom's: 1. Remember

Gradable: automatic

5) The evolutionary innovations of amphibians for life on land include which of the following?

A) The amniotic egg and shell

B) Lungs and limbs

C) A watertight skin

D) A life cycle independent of a need for water to breed

E) All of the choices are correct.

Answer: B

Section: 17.01

Topic: Devonian Origin of Tetrapods

Learning Objective: 17.01 Describe the best hypotheses for explaining from key fossils how the ancestral tetrapod body plan first evolved in the Paleozoic Era.

Bloom's: 2. Understand

Gradable: automatic

7) Adaptations for terrestrialism in early tetrapods resulted in an air-filled cavity along with

A) mucous membrane-lined nostrils.

B) a complex nervous system.

C) internal embryo gestation.

D) an abdominal cavity.

E) double circulation.

Answer: E

Section: 17.01

Topic: Devonian Origin of Tetrapods

Learning Objective: 17.01 Describe the best hypotheses for explaining from key fossils how the ancestral tetrapod body plan first evolved in the Paleozoic Era.

Bloom's: 1. Remember

Gradable: automatic

8) What was the 350 million-year-old fossil called *Ichthyostega?*

A) A lobe-finned fish that represents the likely ancestor to the amphibians.

B) One of the earliest known tetrapods.

C) A lizard-like stem reptile.

D) A ray-finned fish that gave rise to the amphibians.

E) The first fish-to-amphibian transitional form to have lost fin rays and gill bones, thus committing itself to a land existence.

Answer: B

Section: 17.01

Topic: Devonian Origin of Tetrapods

Learning Objective: 17.01 Describe the best hypotheses for explaining from key fossils how the ancestral tetrapod body plan first evolved in the Paleozoic Era.

Bloom's: 1. Remember

Gradable: automatic

11) Moving from fish to amphibians, we see which general conversion?

A) A 3-chambered to a 4-chambered heart.

B) All-eggs-in-water to all-eggs-on-land.

C) The lateral line to senses of smell and hearing.

D) Moist skin to skin protective of water loss.

E) All of the choices are correct.

Answer: C

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.02 Describe the shared and distinctive characteristics of the three orders of living amphibians: caecilians, frogs and salamanders.

Bloom's: 1. Remember

Gradable: automatic

12) Amphibians were the first vertebrate invaders of land, but most still must return to the water to \_\_\_\_\_\_\_\_.

A) reproduce

B) breathe

C) feed

D) All of the choices are correct.

Answer: A

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.02 Describe the shared and distinctive characteristics of the three orders of living amphibians: caecilians, frogs and salamanders.

Bloom's: 1. Remember

Gradable: automatic

14) Caecilians

A) live in the tropics around the world.

B) are blind or nearly blind as adults.

C) are elongate, burrowing animals.

D) use copulation for internal fertilization.

E) All of the choices are correct.

Answer: E

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.02 Describe the shared and distinctive characteristics of the three orders of living amphibians: caecilians, frogs and salamanders.

Bloom's: 2. Understand

Gradable: automatic

15) The Urodela

A) are hermaphroditic.

B) are tadpoles when young.

C) retain their tail permanently.

D) live only in the tropics.

E) never have to return to water to breed.

Answer: C

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.02 Describe the shared and distinctive characteristics of the three orders of living amphibians: caecilians, frogs and salamanders.

Bloom's: 1. Remember

Gradable: automatic

17) Completely terrestrial salamanders

A) have succeeded in avoiding the need for moisture.

B) convert from the adult form back to a newt form.

C) hold their eggs internally until they hatch.

D) undergo paedomorphosis.

E) undergo direct development with the larval stage bypassed.

Answer: E

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.02 Describe the shared and distinctive characteristics of the three orders of living amphibians: caecilians, frogs and salamanders.

Bloom's: 1. Remember

Gradable: automatic

19) Which of the following regulates amphibian metamorphosis?

A) Calcitonin from the adrenals.

B) Thyroxine from the thyroid gland.

C) Estrogen and testosterone from the gonads.

D) Growth hormone from the liver.

E) Salt levels from the environment.

Answer: B

Section: 17.02

Topic: Modern Amphibians

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Bloom's: 1. Remember

Gradable: automatic

20) When a salamander retains juvenile features even as it matures into an adult the process is called

A) precociousness.

B) spontaneous regeneration.

C) senescence.

D) prematurity.

E) paedomorphosis.

Answer: E

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.04 Describe how fundamental changes to the ancestral, metamorphic life history have occurred in some groups of frogs and salamanders.

Bloom's: 1. Remember

Gradable: automatic

21) The \_\_\_\_\_\_\_\_ is a gilled adult of the Ambystoma genus found in Mexico and the southwestern United States.  In dry conditions it may metamorphose to an air-breathing adult.

A) Axolotl

B) Amphioxus

C) Coelacanth

D) Lungless salamander

E) Mudskipper

Answer: A

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.04 Describe how fundamental changes to the ancestral, metamorphic life history have occurred in some groups of frogs and salamanders.

Bloom's: 1. Remember

Gradable: automatic

23) The Anura differ from the Urodela because the Anura

A) lack a tail in the adult stage.

B) have hind legs adapted for jumping.

C) have a tadpole larval stage.

D) have mostly herbivorous young.

E) All of the choices are correct.

Answer: E

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.02 Describe the shared and distinctive characteristics of the three orders of living amphibians: caecilians, frogs and salamanders.

Bloom's: 2. Understand

Gradable: automatic

24) Most of our familiar frogs belong to which large family?

A) Hylidae

B) Bufonidae

C) Ranidae

D) Plethodontidae

E) Anuridae

Answer: C

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.02 Describe the shared and distinctive characteristics of the three orders of living amphibians: caecilians, frogs and salamanders.

Bloom's: 1. Remember

Gradable: automatic

26) Which is true regarding frog skin?

A) The dermis contains chromatophores, which provide skin color.

B) The dermis contains large serous glands derived from the inner epidermis that produce a skin poison.

C) The epidermis contains soft keratin.

D) The epidermis has mucous glands that secrete mucus to waterproof the skin.

E) All of these choices are correct.

Answer: E

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.02 Describe the shared and distinctive characteristics of the three orders of living amphibians: caecilians, frogs and salamanders.

Bloom's: 2. Understand

Gradable: automatic

27) It grows legs and loses a tail. It changes from an herbivore with a long digestive tract to a carnivore with a shorter one. It loses its gills and lateral line system and uses its skin, mouth, and lungs for gas exchange. What is it?

A) Lancelet

B) Sea squirt larva

C) Lung-fish

D) Tadpole

E) Primitive reptile

Answer: D

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.03 Describe the ancestral amphibian life history, in which an aquatic larval stage precedes a metamorphosis that produces a terrestrial adult.

Bloom's: 3. Apply

Gradable: automatic

31) In addition to the sinus venosus and the conus arteriosus the heart of a frog has two \_\_\_\_\_\_\_\_ and one \_\_\_\_\_\_\_\_.

Answer: atria, ventricle

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.02 Describe the shared and distinctive characteristics of the three orders of living amphibians: caecilians, frogs and salamanders.

Bloom's: 1. Remember

Gradable: manual

33) Salamanders and newts are in the order \_\_\_\_\_\_\_\_.

Answer: Urodela

Caudata

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.02 Describe the shared and distinctive characteristics of the three orders of living amphibians: caecilians, frogs and salamanders.

Bloom's: 1. Remember

Gradable: manual

36) Frogs and toads belong to the order \_\_\_\_\_\_\_\_, a name that means "without a tail."

Answer: Anura

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.02 Describe the shared and distinctive characteristics of the three orders of living amphibians: caecilians, frogs and salamanders.

Bloom's: 1. Remember

Gradable: automatic

38) In frogs the most posterior vertebrae are fused together to form a rod-like \_\_\_\_\_\_\_\_.

Answer: urostyle

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.02 Describe the shared and distinctive characteristics of the three orders of living amphibians: caecilians, frogs and salamanders.

Bloom's: 1. Remember

Gradable: automatic

41) Describe three factors likely leading to the worldwide decline in amphibians.

Answer: Answers will vary.

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.03 Describe the ancestral amphibian life history, in which an aquatic larval stage precedes a metamorphosis that produces a terrestrial adult.

Bloom's: 3. Apply

Gradable: manual

42) Discuss the transition from an aquatic environment to a terrestrial environment. What are the structural and physiological features required for such a move?

Answer: Answers will vary.

Section: 17.01

Topic: Devonian Origin of Tetrapods

Learning Objective: 17.01 Describe the best hypotheses for explaining from key fossils how the ancestral tetrapod body plan first evolved in the Paleozoic Era.

Bloom's: 3. Apply

Gradable: manual

44) Compare and contrast the sensory systems of bony fish with those of adult anurans.

Answer: Answers will vary.

Section: 17.02

Topic: Modern Amphibians

Learning Objective: 17.01 Describe the best hypotheses for explaining from key fossils how the ancestral tetrapod body plan first evolved in the Paleozoic Era.

Bloom's: 3. Apply

Gradable: manual