Advanced Zoology Principles

Zoology · Answer Key · 18 Questions

1. Which specialized structure in birds is primarily responsible for the mechanical breakdown of food, compensating for the lack of teeth?

A) Crop
B) Proventriculus
C) Gizzard
D) Cloaca

2. In echinoderms, which anatomical system is utilized for locomotion, food capture, and gas exchange?

A) Water vascular system
B) Coelomic cavity
C) Open circulatory system
D) Radial nerve ring

3. Which group of vertebrates is characterized by having a three-chambered heart with two atria and one partially divided ventricle?

A) Chondrichthyes
B) Aves
C) Reptilia
D) Mammalia

4. What is the primary function of the flame cells found in the phylum Platyhelminthes?

A) Digestion
B) Excretion and osmoregulation
C) Sensory perception
D) Gamete production

5. Which protein is the principal component of the nematocysts found in Cnidarians?

A) Collagen
B) Chitin
C) Keratin
D) Actin

6. What is the unique characteristic of the subclass Prototheria (monotremes) in the class Mammalia?

A) They lack mammary glands
B) They are viviparous
C) They possess a cloaca and lay eggs
D) They lack a neocortex

7. Which physiological process occurs in the Malpighian tubules of insects?

A) Respiration
B) Nitrogenous waste excretion
C) Chemoreception
D) Lipid storage

8. In phylogenetic classification, what term describes a clade that consists of an ancestral species and all its descendants?

A) Paraphyletic
B) Polyphyletic
C) Monophyletic
D) Homoplasy

9. Which type of cleavage is characteristic of protostome embryonic development?

A) Radial cleavage
B) Spiral cleavage
C) Superficial cleavage
D) Discoidal cleavage

10. What is the primary role of the pedal ganglion in the nervous system of Bivalve mollusks?

A) Control of the digestive tract
B) Coordination of foot movement
C) Processing visual stimuli
D) Regulation of heart rate

11. Which vertebrate class is defined by the absence of jaws and the presence of a persistent notochord throughout the life cycle?

A) Actinopterygii
B) Agnatha
C) Amphibia
D) Sarcopterygii

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12. In the context of respiratory pigments, which metal ion is at the core of the hemocyanin molecule found in many arthropods and mollusks?

A) Iron
B) Copper
C) Magnesium
D) Zinc

13. What is the functional significance of the typhlosole in an earthworm's intestine?

A) Increasing surface area for nutrient absorption
B) Crushing soil particles
C) Neutralizing soil acidity
D) Producing digestive enzymes

14. Which embryonic germ layer gives rise to the nervous system and epidermis in triploblastic animals?

A) Endoderm
B) Mesoderm
C) Ectoderm
D) Blastocoel

15. What is the primary method of gas exchange in adult amphibians that have lost their lungs, such as some species of lungless salamanders?

A) Tracheal system
B) Cutaneous respiration
C) Book lungs
D) Opercular gills

16. Which structure in the amniotic egg is responsible for storing metabolic waste products?

A) Amnion
B) Chorion
C) Allantois
D) Yolk sac

17. In spiders, what are the primary respiratory organs used for gas exchange?

A) Tracheae
B) Book lungs
C) Spiracles
D) Gills

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18. Which evolutionary concept explains why analogous structures, such as the wings of insects and birds, perform similar functions despite different origins?

A) Convergent evolution

B) Divergent evolution

C) Adaptive radiation

D) Genetic drift

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