

Evolutionary Genealogy of Natural Species

Biological Genealogy · Answer Key · 10 Questions

1. Which extant mammalian order is phylogenetically the closest living relative to the order Cetacea?

- A) Perissodactyla
- B) Artiodactyla**
- C) Carnivora
- D) Chiroptera

2. In the genealogy of Equidae, which genus represents the earliest known ancestor that diverged from the lineage leading to modern horses?

- A) Equus
- B) Merychippus
- C) Hyracotherium**
- D) Meshippus

3. Molecular phylogenetic studies indicate that the closest living relative to the order Sirenia (manatees and dugongs) belongs to which mammalian clade?

- A) Proboscidea**
- B) Rodentia
- C) Cetartiodactyla
- D) Perissodactyla

4. Which plant family is genetically identified as the closest extant relative to the order Amborellales, often considered the sister group to all other flowering plants?

- A) Nymphaeaceae
- B) Magnoliaceae
- C) Amborellaceae**
- D) Piperaceae

5. In avian genealogy, which group is currently recognized as the sister taxon to the order Passeriformes (perching birds)?

- A) Psittaciformes**
- B) Falconiformes
- C) Piciformes
- D) Galliformes

6. Genetic analysis shows that the Giant Panda (*Ailuropoda melanoleuca*) diverged from the lineage of other bears approximately how many million years ago?

- A) 2-3 million
- B) 18-22 million**
- C) 5-7 million
- D) 10-12 million

7. The genome of the coelacanth (*Latimeria chalumnae*) reveals it is more closely related to which group than to other ray-finned fishes?

- A) Chondrichthyes
- B) Tetrapoda**
- C) Cephalochordata
- D) Actinopterygii

8. Which group of modern reptiles is phylogenetically the closest living relative to the order Crocodilia?

- A) Testudines
- B) Squamata
- C) Aves**
- D) Rhynchocephalia

9. Phylogenetic evidence places the order Scandentia (treeshrews) as the sister group to which clade?

- A) Primates**
- B) Rodentia
- C) Lagomorpha
- D) Dermoptera

10. The evolutionary lineage of the order Monotremata diverged from the common ancestor of Therian mammals during which geological period?

- A) Jurassic**
- B) Cretaceous
- C) Triassic
- D) Permian