

**Exam 3 New Topics Overview**

**Topic 12 – Evolution**

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I. Introduction

- A. Basic Concepts
- B. Some Evidence
- C. Brief History and Details of Evolutionary Theory
  - 1. Lamarck
  - 2. Darwin
  - 3. Dobzhansky and others: the Modern (NeoDarwinian) Synthesis
    - Forces that influence evolution.

II. Species and Speciation

- A. Definition of a species
- B. Barriers to geneflow

**Topic 13 – Evolutionary Origins of Order Cetacea**

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I. Cetaceans are mammals

- A. Phylogeny of extant lineages of mammals
- B. Shared mammalian characteristics
- C. They are not fish

II. The Order Cetacea

- A. Baleen Whales
- B. Toothed Whales

III. Evolutionary Origins of Cetaceans

- A. Support for their origin from terrestrial ungulates
  - 1. Phylogenetic evidence
  - 2. Analogous origins of aquatic mammals from terrestrial mammals
    - a. Cetaceans   b. Sirenians   c. Pinnipeds   d. Otters
  - 3. Front flippers derived from front limbs.
  - 4. Loss of hind limbs/legs (know fossil sequence supporting this).
  - 5. Nostril migration.

## **Topic 14 – Humans Origins**

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### I. Our Primate Heritage

- A. First primates were arboreal.
- B. Three major groups of primates.
- C. Apes: Gibbons
- D. Apes: Orangutans
- E. Apes: Gorillas
- F. Apes: Chimps
- G. Apes: Humans

### II. Hominid Evolution

- A. Family Hominidae
- B. The human branch
- C. Evolution of bipedalism
- D. Large brains marks the origin of genus *Homo*.
- E. Origin(s) of *Homo sapiens*