Review Sheet for Lecture 06: Evolution

Terminology and Definitions: theory, homology, ontogeny, phylogeny, fossil succession, the inheritance of acquired characteristics, use and disuse, developmental transmutation, natural selection, Zoological Philosophy, Vestiges of the Natural History of Creation, On the Origin of Species, Lysenkoism, Hierarchy of Creation, Ladder of Progress, orthogenesis, cladogenesis, cladistics, phylogeny, character, allopatric speciation, sympatric speciation, punctuated equilibrium, phyletic gradualism

People:
Charles Darwin
Richard Owen
Baptiste the Lamarck
Robert Chambers
Alfred Wallace

Dates:
Publication of the Origin of Species: 1859

Review Questions:

How is the way that scientists use the word theory different from the way that we use the term in everyday language?

What are the three major parts of the theory of evolution?

Richard Owen argued that similarities in construction between organisms was a sign of God's master plan, repeatedly applied. Charles Darwin argued that it was evidence of common descent. Explain how these two approaches to scientific explanation affect our view of process versus final cause.

What did Haeckel mean by "Ontogeny recapitulates Phylogeny? To what extent is his argument incorrect, to what extent is it correct and evidence for evolution?

How does the biogeography of islands support the theory of evolution?

How are fossil succession and difficulties in classification support for the theory of evolution?

Discuss the three major mechanisms proposed by Lamarck, Chambers, and Darwin in the 19th century respectively. How are they different? To what extent might one interpret Lamarck's and Chamber's mechanism in the light of cultural and societal influences of the day?

Define natural selection in four sentences

Give examples of how culture majors "fitness" different from the way that "evolution" majors fitness?

Discuss some “natural barriers” that support allopatric speciation

Think about sympatric speciation – is it really that different from allopatric speciation? How and how not?