

## Review Questions # 1 - BIL 160 Evolution & Biodiversity - Fall 2023

### Know the meaning/significance of the following terms:

Radiometric dating-  
Archean-  
Proterozoic-  
Phanerozoic-  
RNA world-  
Cenancestor -  
Stromatolite -  
Archaea-  
Ediacarin-  
Kimberella-  
Trace fossil-  
Cambrian explosion-  
Burgess Shale-  
Cast/Mold-  
COSDMPPTJCTQ-  
Bryophyte-  
Snowball earth-  
A.R Wallace-  
R.O. Prum-  
Great Argus-  
Uniformitarianism-  
Runaway selection-  
Law vs theory-  
Null hypothesis-  
Lamarck-  
Malthus-  
Wonderful Life-  
Fact vs truth-  
Homunculus-

### Contrast the following:

Convergence vs parallelism-  
Particulate vs blending-  
Handicap principle vs beauty happens-  
Homology vs homoplasy-  
Deuterostome vs protostome-  
Microevolution vs macroevolution-

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### Questions for practice:

- 1) List the periods of the Phanerozoic in the correct order and their boundary dates. This question will definitely be on the exam.
- 2) Describe three properties of RNA that make it a likely candidate for the genetic material of the first life forms on earth.
- 3) Put the following events in the order in which they occurred (first to last).
  - (a) First Flowering Plants
  - (b) First Amniotes
  - (c) First Mammals
  - (d) Small Shelly Fauna
  - (e) Initial increase in atmospheric  $[O_2]$
  - (f) First vascular plants
  - (g) First stromatolites
  - (h) Extensive grasslands
  - (i) Cambrian Explosion
  - (j) Extinction of non-bird dinosaurs
- 4) What is meant by the term "radiometric dating"?
- 5) What consequence did increased  $O_2$  in the atmosphere bring to the Carboniferous flora and fauna? Where was the  $CO_2$  at this time, and where is it today?
- 6) What are Stromatolites? In what significant way did they and their relatives alter earth's environment for future inhabitants?
- 7) Explain how we can infer the existence, in the Cambrian, of groups (or lineages leading to them) that do not fossilize.
- 8) What significance to the Evolutionary Big Bang is there for appearance in the fossil record of diverse life-forms with no discernible ancestral forms, and phyla of animals to which no evolutionary descendants could be assigned?
- 9) What was Cuvier famous for showing to the world?
- 10) What are some key evolutionary innovations of gymnosperms?

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- 11) How old are the first recognizable mammals, and from what reptilian lineage did they evolve? Is this lineage close to the bird lineage?
- 12) About how many millions of years were required for the evolution of humans?
- 13) Which are the five major extinction events of the Phanerozoic?
- 14) Why did "snowball earth" melt itself?
- 15) What characterized the major difference between Ediacaran and Cambrian fauna that might have led to replacement of the former by the latter?