

(key)

### Origins and Diversity of Life Practice Quiz

1. Which of the following is false regarding the conditions of Early Earth?

- A. The atmosphere consisted of simple gases such as methane, carbon dioxide and steam
- B. The Earth was extremely hot which prevented liquid water from forming for quite some time
- C. The lack of atmosphere allowed many comets and meteors to bombard the planet
- D. The presence of oxygen allowed complex chemical reactions to occur

would have likely prevented necessary chemical rxns due to oxygen's high reactivity

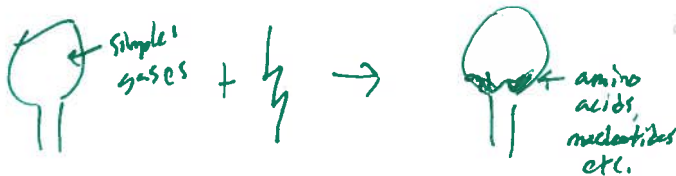
2. Describe 3 key steps that are a part of any theory on how life formed on Earth

- ① complex molecules form
- ② isolation of systems (cell)
- ③ Metabolism (chemical rxns that provide energy for life)
- ④ Self-replication

3. The Miller-Urey experiment showed that

- A. Self-replicating life can form from complex organic molecules
- B. Complex organic molecules could have formed spontaneously under early Earth conditions
- C. RNA was likely the original genetic code and existed before DNA
- D. The first form of life was a heterotrophic prokaryote

3b. Explain your answer



4. Which of the following DOES NOT support the idea that all living things share a common ancestor?

- A. All living things share some core metabolic processes
- B. All living things use a similar genetic code
- C. All living things share similar organelles *not bacteria, archaea, we don't have exact same organelles as plants etc.*
- D. All living things utilize the same amino acid building blocks for proteins

5. Describe the evidence for why Archaea is placed on the same branch as Eukarya, despite being a prokaryotic taxa

- detailed (
- DNA is wrapped in histone proteins
  - more than 1 RNA polymerase
  - similar promoter mechanism
  - no peptidoglycan in cell walls

summary: Many genetic processes similar in Archaeans + Eukaryotes, but not shared by bacteria

just the summary part is fine

6. Which of the following statements is most accurate concerning the timing of life?

- A. After the formation of the Earth it took hundreds of millions of years for the conditions to be hospitable to living organisms *At least 3-500my.*
- B. After the formation of Earth, life formed very quickly
- C. It took billions of years after the formation of Earth for life to begin
- D. We have almost no information on when life began after the formation of Earth

7. Describe what we know about the first form of life

- prokaryotic
- single celled
- heterotrophic (had to eat)

not sure if DNA/RNA was genetic code  
 not sure when/where  
 not sure how  
 could be alien

8. The evolution of photosynthetic bacteria dramatically changed the conditions of Earth by

A. Dramatically reducing the temperature of the Earth

**B. Altering the composition of the atmosphere so that it blocked ultraviolet radiation**  $O_3$  forms from  $O_2 + UV$  light

C. Providing a large amount of food sources on land

D. Producing a chemical composition in the atmosphere that allowed complex chemical reactions to occur

9. Describe how plants and fungi differ and the evidence that suggests they ARE NOT closely related as once was thought (in fact fungi used to be a part of the Plant Kingdom)

Fungi	Plants	
<ul style="list-style-type: none"> <li>• Heterotrophic</li> <li>• chitin in cell walls</li> <li>• spores for reproduction</li> <li>• filaments</li> </ul>	<ul style="list-style-type: none"> <li>• Photosynthetic/Autotrophic</li> <li>• Cellulose in cell walls</li> <li>• pollen / sperm / egg / seeds</li> <li>• roots</li> </ul>	Different structures Genetic differences

10. Many modern biologists argue for the ending of the Kingdom Protista. Which of the following best explains why many prominent scientists do not believe this is a good taxonomic group

A. Protista are very genetically similar and should be considered a phylum or class and not a kingdom

**B. Protists form a non-monophyletic taxa and many are more closely related to other kingdoms than they are to other protists**

C. Protista does not include enough species in the group to be a kingdom

D. Protista are so genetically different that they should be considered a domain instead of a kingdom

11. Draw a pretty picture

