**M.6 Biology**

**Semester 2, 2019/2020**

**Review Sheet**

**Chapter 14: History of Life**

**14.1 Biogenesis**

Student Objectives:

1. Compare the principle of biogenesis with the idea of spontaneous generation.
2. Summarize the results of experiments by Redi and by Spallanzani that tested the hypothesis of spontaneous generation.
3. Describe how Pasteur’s experiment disproved the hypothesis of spontaneous generation.

Vocabulary: *biogenesis, spontaneous generation, vital force*.

**14.2 Earth’s History**

Student Objectives:

1. Outline the modern scientific understanding of the formation of Earth.
2. Summarize the concept of half-life.
3. Describe the production of organic compounds in the Miller-Urey apparatus.
4. Summarize the possible importance of cell-like structures produced in the laboratory.

Vocabulary: *radiometric dating, atomic number, isotopes, mass number, half-life, radioactive decay, radioactive isotopes, microspheres, coaservates.*

**14.3 The First Life-forms**

Student Objectives:

1. Explain the importance of the chemistry of RNA in relation to the origin of life.
2. List three inferred characteristics that describe the first forms of cellular life on Earth.
3. Compare the two types of autotrophy used by early cells.
4. Relate the development of photosynthesis to the development of aerobic respiration in early cells.
5. Explain the theory of endosymbiosis.

Vocabulary: *hereditary, ribozyme, anaerobic heterotrophic prokaryotes, archaea, chemosynthesis, cyanobacteria, Eukaryotic cells, endosymbiosis.*

**Chapter 15: Theory of Evolution**

**15.1 History of Evolutionary Thought**

Student Objectives:

1. Define the biological process of evolution.
2. Summarize the history of scientific ideas about evolution.
3. Describe Charles Darwin’s contributions to scientific thinking about evolution.
4. Analyze the reasoning in Darwin’s theory of evolution by natural selection.
5. Relate the concepts of adaptation and fitness to the theory of natural selection.

Vocabulary: *Catastrophism, Uniformitarianism, acquired characteristics, natural selection, adaptation, fitness, descent with modification.*

**15.2 Evidence of Evolution**

Student Objectives:

1. Relate several inferences about the history of life that are supported by evidence from fossils and rocks.
2. Explain how biogeography provides evidence that species evolve adaptations to their environment.
3. Explain how the anatomy and development of organisms provide evidence of shared ancestry.
4. Compare the use of biological molecules with other types of analysis of evolutionary relationships.
5. Describe the ongoing development of evolutionary theory.

Vocabulary: fossil, extinct, superposition, relative age, absolute age, radiometric dating, transitional species, Biogeography, *embryology, anatomy, Homologous structures, Analogous structures, Vestigial structures, Phylogeny.*

**15.3 Evolution in Action**

Student Objectives:

1. Describe how convergent evolution can result among different species.
2. Explain how divergent evolution can lead to species diversity.
3. Compare artificial selection and natural selection.
4. Explain how organisms can undergo coevolution.

Vocabulary: *evolution, convergent evolution, Divergent evolution, Adaptive radiation, Artificial Selection, coevolution, resistance****.***