**NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**BIOLOGY REVIEW SHEET MIDTERM 2014**

**A. ECOLOGY**

1. The following situations illustrate various ecological relationships. Identify which relationship (commensalisms, mutualism, parasitism, or predation) is described in each situation.
2. PARASITISM Bacteria that live on the surface of our teeth require sugar from our food to survive. A by-product of their metabolism (body processes) decays the enamel of teeth.
3. PREDATION A coyote captures, kills, and eats a rabbit.
4. COMMENSALISM A mite (an eight-legged organism similar to a spider) lives in the base of the eyelashes of people who use mascara. It feeds on the mascara; it does not seem to harm people.

 2. For the following choose either: VARIATION or ADAPTATION

1. VARIATION The difference in the physical traits of an individual from those of other individuals in the group to which it belongs.
2. ADAPTATION A feature that allows an organism to better survive in its environment.
3. ADAPTATION A tortoise population lives in an area with tall grass. These

tortoises have longer necks than tortoises that live in other areas. Having a long neck is an example of this.

1. \_VARIATION One fish in a population has slightly darker scales than its relatives. The difference in color of scales is an example of this.
2. Label the organisms on the food web below with the following labels (each organism will have two labels)
	1. producer or primary, secondary, or tertiary consumer
	2. herbivore, omnivore, or carnivore



1. In the food web on the previous page, what would happen if the wildcat was removed from the population?

The direct result would be an increase in the mouse and rabbit populations, which may result in a decrease in the producer populations thus affecting the entire ecosystem.

1. The illustration below represents the carbon cycle. Which portion is responsible for the large increase of CO2 in the environment? Combustion of fossil fuels.



**B. BIOCHEMISTRY**

1. Complete the table below.

|  |  |  |  |
| --- | --- | --- | --- |
| Organic Molecule | Monomer | Function | Indicator used to identify and color change |
| Carbohydrate | monosaccharide | energy | Iodine (complex)Amber to blackBenedict’sTurquise to orange |
| Lipid | Glycerol and fatty acids | Energy, insulation | Brown paper bagTranslucent even when dry |
| Protein | Amino acid | Structure, transport, traits | BiuretBlue to purple (violet) |
| Nucleic Acid | Nucleotide | Heredity |  |

**C. CELLS**

1. Fill out the chart about cells with a “yes” or a “no”

|  |  |  |
| --- | --- | --- |
|  | **PROKARYOTIC** | **EUKARYOTIC** |
| **Cell membrane** | **YES** | **YES** |
| **Cytoplasm** | **YES** | **YES** |
| **Genetic Material** | **YES** | **YES** |
| **Ribosome** | **YES** | **YES** |
| **Nucleus** | **NO** | **YES** |
| **Organelles** | **NO** | **YES** |
| **Type of cell** | **Simple** | **complex** |

 2. Label each of the following descriptions as either lytic cycle, lysogenic cycle, or both.

1. Both Virus attaches to surface proteins of targeted cell.
2. Both Viral DNA enters the targeted cell.
3. Lysogenic Viral DNA become incorporated in cell DNA and is copied along with cell DNA.
4. Lytic Viral DNA is copied by cell and new viral particles are quickly assembled.
5. Lysogenic New cells formed during mitosis include the viral DNA as part of the cell.
6. Lytic Cell is burst open and viral particles are released.

 3. State the reason bacteria are considered living and viruses are not considered living.

Bacteria are able to reproduce on their own. Viruses require a host to reproduce.

**D. CELL PROCESSES**

1. Fill out the chart below to compare photosynthesis and cellular respiration.

|  |  |  |
| --- | --- | --- |
|  | PHOTOSYNTHESIS | CELLULAR RESPIRATION |
| Occurs in what type of cells. | Plant | Plant and animal |
| Takes place in the \_\_\_\_ organelle | Chloroplast | Mitochondria |
| Reactants  | Carbon dioxide and water | Glucose and oxygen |
| Products  | Glucose and oxygen | Carbon dioxide, water, ATP |
| Full Equation | CO2 + H20 ------ C6H12O6 + O2 | C6H12O6 + O2 ----- CO2 + H2O + ATP |

**E. DNA AND PROTEINS**

1. Label the DNA nucleotide below.
2. phosphate group
3. sugar
4. nitrogen base



1. Name the part(s) of the nucleotide that make up the backbone.

Phosphate group and sugar

1. Name the part(s) of the nucleotide that make up the steps/rungs of DNA.

Nitrogen base

4. Complimentary base pair the DNA molecule below. ACGTACC



1. Explain the following statement: DNA replication is semi-conservative.

When DNA replication is complete each new strand contains one parent strand (from the original DNA) and one daughter strand.

1. Identify the following statements as either DNA, RNA, or Both.
2. Both A type of nucleic acid.
3. DNA Double stranded.
4. RNA Nitrogen bases include uracil.
5. DNA Sugar is deoxyribose.
6. Both Monomer is a nucleotide.
7. Identify the following statements as either transcription or translation.
8. Transcription Occurs in the nucleus of a cell.
9. Transcription Directly involves DNA.
10. Translation Occurs in the ribosome of a cell.
11. Translation Amino acids are delivered to build a protein.
12. Translation Step when I would use the codon chart to determine the amino acid sequence.