Unit 1 Study Guide

# Layout of Test:

Section 1 – Multiple Choice

 25 questions (2 points each)

Section 2 – DBQ, statistics, and diagrams

 The possible DBQ questions are posted on my website

 Statistics would require you to perform statistical analysis of given data to draw a conclusion

 Possible diagrams for this unit: nucleotide, DNA, protein synthesis, enzyme substrate complex

Section 3 – Short Answer

 Answer five of the options provided

# Topics

* Elements
* Water
* Carbohydrates
* Lipids
* Proteins
* Enzymes
* Nucleic Acids
* DNA replication
* Protein synthesis

# Vocabulary

* Cohesion
* Solvent
* Thermal
* Condensation
* Hydrolysis
* Organic
* Innorganic
* Polymer
* Monomer
* Monosaccharide
* Glucose
* Fructose
* Galactose (just need to know what type of sugar it is, not the function)
* Disaccharide
* Matose (just need to know what type of sugar it is, not the function)
* Lactose
* Sucrose
* Polysaccharides
* Starch
* Glycogen
* Cellulose
* Insulation
* Buoyancy
* Steriods
* Fatty Acids
* Glycerol
* Saturated
* Unsaturated
* Isomer
* Cis isomer
* Trans isomer
* Polyunsaturated fat
* Triglyceride
* Micelle
* Hydrophilic
* Hydrophobic
* Enzyme
* Catalyst
* Amino acid
* Polypeptide
* Peptide bond
* Rubisco
* Insulum
* Immunoglobins
* Rhodopsin
* Collagen
* Spider silk
* Activation energy
* Substrate
* Nucleotides
* Nucleic acids
* DNA
* RNA
* Adenine
* Guanine
* Cytosine
* Thymine
* Uracil
* Purine
* Pyrimidine
* Nucleosome
* Histone protein
* Supercoiling
* Helicase
* Leading strand
* Lagging Strand
* Okazaki fragments
* Ligase
* DNA Polymerase I
* DNA Polymerase III
* RNA Primase
* Replication fork
* Semi-conservative
* mRNA
* tRNA
* rRNA
* Transcription
* Translation
* Antisense strand
* Sense strand
* RNA polymerase
* Promoter region
* Terminator
* Introns
* Exons
* Codons
* Anticodons
* A site
* P site
* E site
* Activation enzyme (in relation to tRNA)
* Catabolism
* Anabolism

# Concepts

* Name the four most common elements in organic compounds and which organic compounds they are found in
* Name 5 other important elements and a reason for their importance in living things
* Be able to explain the polar nature of water
* Provide the three physical properties of water with an example of how each is important to living things
* Be able to explain the structure and function of carbohydrates, lipids, proteins, and nucleic acids
* Describe the reactions that join monomers or split monomers
* Provide the function of two monosaccharides and two disaccharides
* Explain the function of three polysaccharides
* Distinguish between the structure of glucose, ribose, nucleotides, saturated fatty acids, monounsaturated fatty acids, polyunsaturated fatty acids, and amino acids
* Compare and contrast carbohydrates in the energy storage
* Provide named examples of proteins and their function
* Explain how enzymes work and their properties (reusable and specific)
* Explain how temperature, pH, and substrate concentration impact enzyme function
* Compare and contrast DNA and RNA
* Describe the three types of RNA and their functions
* Explain the reason behind the base pair rule that A goes with T and C goes with G
* Describe the structure of a nucleosome
* Explain the process of DNA replication (including the enzymes involved)
* Explain why DNA replication is considered semi-conservative
* Explain the process of transcription (including the enzymes involved and the modification of mRNA to form mature mRNA)
* Explain the process of translation
* Given a DNA strand, be able to provide the complementary strand, mRNA, tRNA (anticodon), and amino acid sequence
* Describe the four levels of protein structure