

AP Biology - Mid-Year Exam Study Guide

400 Points

Part I: 50 Multiple Choice – 60% – #2 Pencil Required

Unit 1: The Chemistry of Life

- tertiary structure of a polypeptide
- energy storage capacity of molecules
- functional groups – acetone, dopamine, formaldehyde, ethanol (4)

Unit 2: Cells

- mitochondria and chloroplast structure
- animal cells in different solutions
- prokaryotes vs. eukaryotes
- organelle S&F (2)
- endomembrane system
- organization of living systems (S→L)

Unit 3: Cellular Energetics

- allosteric inhibition
- photosynthesis vs. respiration
- anaerobic respiration in animals
- processes that produce ATP
- fermentation vs. aerobic respiration
- lactic acid fermentation & pH
- chemiosmosis
- C₄ plants
- graph – CO₂ uptake & tissue starch concentration in plants (4)

Unit 4: Heredity

- diploid
- genetic diseases
- number of possible genotypes given cross
- pedigrees
- graph – mitosis – relative amount of DNA/cell vs. # cells (3)
- fruit fly genetics (3)

Unit 5: Molecular Genetics

- Meselson & Stahl
- RNA processing & protein synthesis (4)
- chromosome structure – prokaryote vs. eukaryote (4)

Term Projects – S&F of Plants

- life cycle of angiosperm
- storage of carbohydrates in dicots
- plant anatomy & photosynthesis
- opening and closing of stomata
- plant evolution
- adaptations that prevent dehydration

Part II: 2 Free Response Questions – 40%

1. Cell Homeostasis & Membrane Systems
2. Structure of Proteins
DNA → RNA → Protein
Role of Proteins in Membrane Structure and Function