CHM 333
Review Sheet – Exam 3

Carbohydrate Function

Classes of Carbohydrates

Aldose vs. Ketose

Fischer Projections

Diastereomers and Enantiomers

Epimers

Anomers

Structures of D-Monosaccharides
- Glucose
- Mannose
- Galactose
- Ribose
- Fructose
- Glyceraldehyde
- Dihydroxyacetone

Cyclization and Mutarotation of Monosaccharides

Haworth Projections

Convert between Fischer and Haworth projections

Anomeric Carbon

Reducing vs. Non-Reducing sugars

Drawing short polysaccharides (di-, tri)

General way to name disaccharides

Structures/Properties of Disaccharides
- Cellobiose
- Sucrose
- Lactose
- Maltose

Storage Polysaccharides
- Glycogen
- Amylose
- Amylopectin

Glycoproteins

Function of Lipids

Classes of Lipids
- Phospholipids (Phosphoacylglycerol)
- Sphingolipids
- Non-Saponifiable Lipids/Steroids
- Triacylglycerols (TAGs)

Drawing/Naming Fatty Acids/Triacylglycerols

Saturated vs. Unsaturated Fatty Acids

Packing/Melting Point of Fatty Acid Chains

Storage Lipids (Triacylglycerols/TAGs)

Adipocytes

Fat Substitutes (Olestra, Trans-Fatty Acids)

Cholesterol

Biological Membranes

Membrane Fluidity

Effect of Chain Length

Effects of Saturation/Unsaturation

Effect of Cholesterol

Lipid Bilayers

Movement of Lipids & Proteins in Membranes

Flippases

Membrane Proteins
- Integral
- Peripheral
- Lipid-linked

Fluid Mosaic Model

Membrane Function

Membrane Transport
- Symporters
- Antiporters
- Uniporters

Passive Transport

Facilitated Diffusion

Simple Diffusion

Active Transport

Cellular Metabolism

Catabolism

Anabolism

Metabolic Pathways

Three Stages

Compartmentalization

Classes of Metabolic Reactions
- Group Transfer
- Hydrolysis
- Non-Hydrolytic Cleavage
- Isomerization/Rearrangement
- Oxidation/Reduction
- Bond Formation Using ATP

Common Functional Groups

Thioester Bonds

Substrate Level Phosphorylation

Oxidative Phosphorylation

Thermodynamics

Free Energy

Spontaneity

Coupling Reactions

ATP

Phosphoanhydride Bonds