



# **RASHIDA IQBAL FINANCIAL AID** **ORGANIZATION**

**FOUNDATION MODULE**  
**BIOCHEMISTRY GUIDELINES**  
**1<sup>ST</sup> YEAR**

RAWALPINDI MEDICAL UNIVERSITY

— Underlined topics very important

## **Biochemistry**

- **Cell**

- Book: Mushtaq volume 1**

- Differences between lysosomes and peroxisomes
    - Intracellular organelles and markers
    - Adsorption, clinical applications
    - Ion exchange resins
    - Emulsions, types and applications
    - Gibbs Donnan equilibrium (from Satya)
    - Osmosis, biomedical importance of osmotic pressure, oncotic pressure
    - Cell membrane structure and importance
    - Lipid rafts and caveolae
    - Functions of cell organelles
    - Cystic fibrosis
    - Types of active transport, examples
    - Ion channels characteristics
    - pH, Henderson Hasselbach equation
    - Buffers
    - Role of kidneys in buffer system

- **Nucleic Acids**

- Book: Mushtaq volume 1 + Lippincott**

- Biologically important nucleotides
    - Chargaff's Law
    - Types of DNA
    - Types of RNA

- **Biotechnology**

- Book: Lippincott**

- Recombinant DNA
    - Palindromic sequences
    - Definition of clone and vector
    - Biological importance
    - Polymerase chain reaction, steps, advantages and applications

- **Replication and Transcription**

- Book: Lippincott**

- Steps of DNA replication
    - Differences between prokaryotic and eukaryotic DNA polymerase
    - Steps of transcription
    - Pribnow box, TATA box

- Enhancers and silencers
- Mutation and its types (from Satya)
- Damage to DNA (from Satya)
- **Enzymes**  
**Book: Lippincott + Satya for tables for diagnostic and therapeutic uses of enzymes**
  - Six major classes of enzymes (OTHLIL)
  - Specificity of enzymes
  - Turnover number
  - Factors affecting reaction velocity
  - Michaelis menten equation, three conditions
  - Km (small and large Km)
  - Differences between competitive and non-competitive inhibition
  - Enzyme regulation
  - Isoenzymes, importance in diagnostics
  - Enzyme markers for organelles
  - Enzymes used as markers of heart, liver and bone disease
  - Enzyme inhibition and examples
- **Signal Transduction**  
**Book: Lippincott pages 94, 95 and 205**
  - G proteins (Gs and Gp)
  - Hepatocellular receptors
  - Activation and inactivation of G proteins

**REMEMBER RIFAO TEAM IN YOUR PRAYERS.**

Regards,  
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