



RASHIDA IQBAL FINANCIAL AID **ORGANIZATION**

BIOCHEMISTRY GUIDELINES-2ND YEAR

BLOCK-1

Course:

- GIT biochemistry (recommended book- Mushtaq)
- Acid Base Regulation (recommended book- chapter 21 Satya)
- Carbohydrate Metabolism (recommended book- Lipincott)
- Protein and amino acid Metabolism (recommended book- Satya chapter 15, Lipincott chapter 19 and Ma'am Tehmina's notes)
- Lipoproteins (recommended book- Lipincott chapter 18)
- Liver Function tests (lecture notes)
- Jaundice (recommended book-lipincott)

GIT

You can give a read to chapter 10 of Mushtaq i.e. The biochemistry of gastrointestinal tract. There are many concept clearing and knowledgeable points in this chapter which can be useful both for mcqs and seqs. While some people might say GIT, if once done from physiology, is enough for some urgent test in which you might be on shortage of time, I highly recommend giving a read to this chapter as well at least once. In fact, you might prefer it over doing GIT from physiology and you might not have to do it again for physio.

Some important questions include:

- Characteristics of Saliva. (especially imp are the names of enzymes present in it, names of its inorganic and organic constituents etc.)
- Functions of HCL and from where it is secreted and how it is formed (diagram would be a preferable answering technique for method of formation of HCL.)
- Functions of pepsinogen, from where it is secreted.
- How is gastric mucosa protected from injury and autodigestion?
- Enzymes of pancreatic juice and how they are activated.
- Panreatitis.
- Functions of bile salts.
- Enzymes and functions of succus entericus.
- A separate note on digestion and absorption of proteins, carbohydrates or lipids may come in the exam. And there are high possibilities of mcqs from this portion, for example, the types of glucose transporters present in intestine for glucose or fructose or galactose etc.

Acid Base Regulation

- Disorders of acid base balance and their corrections.
- Tables 21.4 and 21.6 from satya.
- Anion gap

Carbohydrate Metabolism

Prepare this section from lipincott and because it will be your first time doing metabolisms, you might find it hard to understand so you can watch Kaplan videos (that you can take from your seniors or Rifao drive) for this which will help you a lot in developing proper concepts after which seqs and mcqs will be a piece of cake In Sha Allah. Regulatory steps of all the pathways are very important and try to learn these pathways in the form of flowcharts. Also know which organ is involved in which pathway and in which organelle that pathway is taking

place and whether it is happening during fed and fasting state and how hormones effect it.

Important things include:

- Glycolysis pathway (often a question might come on glycolysis in a certain tissue like skeletal muscle or liver or cardiac muscle, so if you read any small difference in a certain pathway with respect to that tissue, do highlight that.)
- Regulatory/irreversible steps of glycolysis and their enzymes.
- RBC shunt
- Cyanide poisoning.
- Specific glucose transporters in various tissues.
- Differences between hexokinases and glucokinase.
- Lactic acidosis
- Alternative fates of pyruvate (consult this from mushtaq as well in addition to lipincott).
- Energy yield from glycolysis.
- Regulation of glycolysis.
- Congenital acidosis.
- Arsenic poisoning.
- Regulation of TCA cycle. Regulatory steps of TCA cycle. Energy yield.
- Fluoride poisoning.
- Irreversible and additional steps of gluconeogenesis and their enzymes.
- Energy yielding steps of TCA cycle.
- Difference between gluconeogenesis in liver and muscle.
- Regulation of gluconeogenesis.
- Alanine cycle and Cori cycle.
- Reciprocal regulation of glycogen synthesis and degradation.
- Glycogen storage diseases.
- Fructose pathway is important.
- Why fructose is more atherogenic than glucose?
- Disorders of fructose and galactose metabolism.

- What causes neuropathy and cataract in diabetes?
- How cholesterol and TAGs are formed from sucrose?
- How lactose is formed in mammary gland?
- Uses of NADPH are very important.
- Pentose pathway and uronic acid pathway.
- G6PD deficiency is very important.

Protein and Amino acid Metabolism

Do ma'am Tehmina's notes or chapter 19 of Lipincott and the remaining from chapter 15 of satya. Important things include:

- Nitrogen balance types and it's conditions.
- Urea cycle is all together very important.
- Transdeamination. (figure 19.12 is very imp for this question and also for ospes.)
- Ammonia toxicity (signs, symptoms and mechanism.)
- Glutathione synthesis.
- All disorders from satya are important regarding each amino acid but especially imp ones include: PKU, Alkaptonuria, Malic Acid Disease, Albinism, Maple syrup syndrome.
- Catecholamine synthesis.
- Synthesis and functions of serotonin and melatonin.
- Thyroid hormone synthesis.
- Fate of different amino acids.
- Products of glycine.
- Production of spermine, spermidine and putrescine.
- Mechanism of methylation under the topic of methionine.

Lipoprotein Metabolism

- Give a good read to all chylomicron pathways.
- Reverse cholesterol transport.
- Hyperlipoproteinemias and hypolipoproteinemias from satya, specifically do the tables.
- Fatty liver from satya or harper. (very imp)

Just give a review reading to jaundice and LFTs as you have already studied these topics before.

Nutrition is not that important, just listen to the lectures or note them down, which would be sufficient.

Remember in your prayers,

Regards

Aimen Sami,

Publications Representative, Batch 45.

