List of compounds which structures students should know for lab test 5:

1. Carbohydrates:
   - enantiomers of glucose (D, L glucose)
   - epimers of glucose (galactose, mannose)
   - anomers of glucose (α and β glucose)
   - ketoses (fructose), anomers of fructose (α and β fructose)
   - pentoses (ribose)
   - products of glucose oxidation: gluconic and glucuronic acid
   - product of glucose reduction: sorbitol
   - monosaccharides phosphoric esters: e.g glucose-6-phosphate, fructose-1,6-bis-phosphate
   - deoxysaccharides: deoxyribose, fucose
   - amino sugars: N-acetylglucosamine (GlcNAc), N-acetylgalactosamine (GalNAc)

2. Carboxylic acids:
   - succinic acid, fumaric acid, malic acid, citric acid, lactic acid, pyruvic acid
   - fatty acids: stearic, palmitic, oleic, linoleic, linolenic, arachidonic
   - acyl and acetyl

3. Aromatic and heterocyclic compounds:
   - hydroquinone, p-quinone
   - aspirin
   - pyrrole, imidazole
   - pyrimidine bases (cytosine, uracil, thymine)
   - purine bases (adenine, guanine)
   - uric acid

Students should be familiar with the following notions:

1. Isomerism of monosaccharides – diastereoisomers, enantiomers, epimers, anomers
2. The difference between ketoses and aldoses
3. Isomerization of hexoses in alkaline medium
4. How to reveal reducing properties of monosaccharides
5. How the ring forms of monosaccharides are formed (anomers of glucose, fructose)
6. What does it mean that specific monosaccharides (what monosaccharides) determine blood groups
7. What are glycosides (what is the difference between O and N glycosides)
8. What is glycation (what are AGEs). Students should understand the difference between glycation and glycosylation.
9. What is the difference between acyl and acetyl
10. Numerical forms of unsaturated fatty acids
11. How to name unsaturated fatty acids from omega end; names of essential fatty acids
12. What components and kinds of bonds are in ATP (without ATP structure)