

List of structures required at the exam

Aliphatic hydrocarbons saturated and unsaturated: basic series of saturated homologues up to C₁₀, isoprene. Cyclic compounds.

Aromatic hydrocarbons: benzene, benzopyrene

Heterocyclic hydrocarbons: furan, pyran, pyrrole, purine, pyridine, pyrimidine, thiophene, thiazole, imidazole, indole, nicotinic acid.

Alcohols: the basic series, glycerole, sphingosine

Aldehydes and ketons: methanal, ethanal, acetone, (retinal)

Amines – prim., sec., terc., quaternary ammonium salts, nitriles (cyanides, imines – Schiff bases)

Carboxylic acids: basic series up to C₁₀ (including trivial names), acids - oxalic, tartaric, fumaric, malonic, maleinic, β-hydroxybutyric, glutaric and citric, derivatives of carbonic acid – urea

Substitution and functional derivatives of acids- amino acids, hydroxy acids, keto acids, esters including esters of inorganic acids with alcohols, amides

Anhydrides, ethers

Sulfides, disulfides, thiols, thioesters

Fatty acids: palmitic, stearic, oleic, arachidonic, linoleic, linolenic

Intermediates of glycolysis, citric acid cycle, β-oxidation, urea cycle, (structures of pentose phosphate pathway, conversion of amino acids – initial compounds and final products, compounds important in medicine)

20 basic amino acids that occur in proteins, ornithine, citrulline, δ-aminolevulinic acid

Derivatives of amino acids: dipeptides, glutathione, triiodthyronine, thyroxine, histamine, serotonin, γ-aminobutyric acid, DOPA, dopamine, epinephrine, norepinephrine, acetylcholine, (carnitine)

Bases present in DNA or RNA, oxopurines, nucleosides and nucleotides, cAMP, ATP, (orotic acid)

(Coenzymes: NAD⁺, FAD, pyridoxal phosphate, coenzyme Q, biotin)

(Heme, bilirubin)

Monosaccharides : glucose, galactose, fructose, ribulose, (ascorbic acid), hexosamines, uronic acids, reduced sugars, glycosides, phosphates

Disaccharides: sucrose, maltose, lactose, isomaltose

Polysaccharides: starch, glycogen

Structure of polypeptide and polynucleotide chain, structure of glycogen

Steroids: sterane, cholesterol, (progesterone, aldosteron, cortisol, testosteron, estradiol, cholic acid, vitamins D, dehydroepiandrosterone)

Creatine, (creatinine)

Note: knowledge of the basic structural features is sufficient for the compounds listed in parentheses.