List of structures required for the introductory written test at the exam of Medical Chemistry and Biochemistry

Group of compounds	Essential structures	Additional structures
Aliphatic hydrocarbons	basic series of homologues up to C10, sterane, isoprene	cyclic compounds
Aromatic hydrocarbons and their derivatives	benzene, naphthalene, phenol, catechols, hydroquinone	benzopyrene, biphenyl
Alcohols, aldehydes, ketones	methanol, ethanol, glycerol, ethylene glycol, choline, ethanolamine, sphingosine, acetaldehyde, glyceraldehyde, acetone	cyclohexanol
Amines	general rules of nomenclature, Schiff bases – imines, creatine	nitriles, cyanides, quaternary ammonium salts, guanidine, creatinine
Heterocyclic compounds	furan, pyran, pyrrole, imidazole, pyridine, pyrimidine, purine, uric acid, xanthine	indole, tetrahydrofuran, thiofene, tetrapyrrole, hypoxanthine
Other organic compounds	chloroform, bromoform, jodoform	EDTA
Carboxylic acids and their derivatives	basic monocarboxylic acids up to C5, benzoic, oxalic, succinic, malonic, maleinic, fumaric, glutaric, malic, lactic, citric, β-hydroxybutyric, tartaric, acetoacetic, oxaloacetic acid	further basic monocarboxylic acids, salicylic acid, sulfanilic acid, p-aminobenzoic acic (PABA)
Amino acids and their derivatives	20 basic proteinogenic amino acids, δ-aminolevulinic acid, histamine, serotonine, GABA, dopamine, acetylcholine, triiodothyronine, thyroxine, epinephrine, norepinephrine	carnitine, taurine, glutathione, DOPA
Saccharides	glucose, galactose, fructose, ribose,deoxyribose, ribulose, disaccharides - basic rules of their formation, bonds glucosamine, galactosamine, phosphate esters of basic saccharides	mannose, sialic acids, fucose, uronic acids (general formula), sugar alcohols (e.g., mannitol, sorbitol)
Fatty acids and lipids	palmitic, stearic, oleic, linoleic, linolenic, arachidonic, mevalonic acid (including systematic names of basic FA) phosphatidic acid, acylglycerols, cholesterol	bile acids and steroid hormones – schematically (carbon skeletons of sterols and steroids: estrane, androstane, cholane, pregnane; + functional groups of particular derivatives) sphingomyelin, ceramide, cerebrosides, glycerophospholipids

Coenzymes	NAD(P), pyridoxal phosphate	coenzyme Q, biotin, FAD/FMN, THP, lipoic acid, TPP - key functional groups and their reactions (e.g., reduction/oxidation, group transfer...)
Intermediates of metabolic pathways	citric acid cycle, glycolysis, pentose phosphate pathway (up to ribulose-5-phosphate, the rest schematically), gluconeogenesis, glycogen metabolism, urea cycle, general conversions of amino acids, β-oxidation, production of ketone bodies, metabolism of triacylglycerols, FA synthesis (up to malonyl-CoA, the rest schematically), synthesis of cholesterol (up to mevalonate)	precursors and degradation products of complex compounds (e.g. heme, nucleotides, ...), conversions of carbon skeletons of amino acids
Other compounds	urea basic nucleotides, cAMP, phosphoribosyl pyrophosphate HMG-CoA, malonyl-CoA	basic vitamins - overview of structure, schematically

The list serves especially for the introductory written part of the exam.
Active knowledge and usage of the essential structures is required in the full extent.

The list of additional compouns serves as an extension (guideline) which structures are useful to know, but their active knowledge will not be required in the introductory test. A passive knowledge may be required, such as recognize and name the structure, determine which group of substances (saccharides, lipids...) it belongs to etc.