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Issues to pass organic chemistry

Hydrocarbons

1. Homologous series of alkanes - the structure and names of first four alkanes
2. Butane and isobutane
3. Alkens - structures of ethene, propene, butene and isobutene
4. Addition reactions and substitution reactions
5. Reactions to distinguish alkenes from alkanes

Alcohols

6. Definition, obtaining reactions, chemical properties
7. Structure of methanol, ethanol, propanol, butanol
8. Primary and secondary alcohols
9. Reactions of obtaining alcohols and their chemical properties
10. Polyhydric alcohols (glycol, glycerol) - structure and chemical properties

Aldehydes and ketones

11. Definitions, obtaining reactions, chemical properties
12. Chemical properties reducing properties, production of hemiacetals and acetals)
13. Optic isomers: D- and L -glycerol aldehyde
14. Ketones (acetone)

Carboxylic acids

15. Definitions, obtaining reactions, chemical properties
16. Monocarboxylic acids - homologous series, structures and names
17. Esterification reactions
18. Structures of di- and tri-carboxylic acids: oxalic, malonic, succinic and glutaric acid, , aconitic acid
19. Structures of hydroxy- and keto-acids: glycolic, lactic, malic, citric acid, isocitric acid; pyruvic, acetoacetic, oxaloacetic acid
20. Unsaturated acids: maleic and fumaric acids: cis- trans isomerism
21. Urea and biuret
22. Structure of benzoic and salicylic acid

Lipids

23. Definitions, obtaining reactions, chemical properties (lipolysis, saponification, hardening)
24. Structures of simple lipids, phosphatidic acid, lecithin
25. Structures of palmitic, stearic, oleic, linoleic and linolenic acid
26. Acid number
27. Cholesterol and its derivatives - biological meaning

Sugars

28. Definitions, obtaining reactions, chemical properties (reduction, oxidation, phosphorylation)

29. Division and nomenclature of monosaccharides
30. Structures of: ribose, glucose, fructose, galactose
31. Characteristic reactions for reducing sugars
32. Anomers (α- and β-glucose) and epimers of sugars
33. Polysaccharides - glycosidic bond
34. Maltose, lactose, saccharose
35. Homopolysaccharides: cellulose, starch, glycogen
36. Heteropolysaccharides: heparin and hyaluronic acid.