Organic Chemistry Reagents for COMEDK Preparation (Including Common Reagents)

1. LiAlH4 (Lithium Aluminium Hydride)

Strong reducing agent; reduces aldehydes, ketones, esters, and carboxylic acids to alcohols.

2. NaBH4 (Sodium Borohydride)

Milder reducing agent; reduces aldehydes and ketones to alcohols.

3. PCC (Pyridinium Chlorochromate)

Oxidizing agent; oxidizes primary alcohols to aldehydes and secondary alcohols to ketones.

4. KMnO4 (Potassium Permanganate)

Strong oxidizing agent; oxidizes alcohols to carboxylic acids, alkenes to diols or acids.

5. CrO3 (Chromium Trioxide)

Oxidizing agent; used with H2SO4 (Jones reagent) to oxidize alcohols to ketones or acids.

6. O3 (Ozone)

Ozonolysis; cleaves alkenes to form aldehydes or ketones.

7. H2/Pd, Pt, Ni (Catalytic Hydrogenation)

Reduces alkenes, alkynes, and nitro groups.

8. Lindlar’s Catalyst

Poisoned catalyst; reduces alkynes to cis-alkenes.

9. Na/NH3 (Sodium in Liquid Ammonia)

Reduces alkynes to trans-alkenes.

10. SOCl2 (Thionyl Chloride)

Converts alcohols to alkyl chlorides.

11. PBr3 (Phosphorus Tribromide)

Converts alcohols to alkyl bromides.

12. H2SO4 (Sulfuric Acid)

Dehydrating agent; forms alkenes from alcohols.

13. AlCl3 (Aluminium Chloride)

Lewis acid; used in Friedel-Crafts reactions.

14. BH3·THF (Borane-Tetrahydrofuran)

Hydroboration-oxidation; converts alkenes to alcohols with anti-Markovnikov selectivity.

15. mCPBA (meta-Chloroperoxybenzoic Acid)

Oxidizes alkenes to epoxides.

16. NaOEt (Sodium Ethoxide)

Strong base; used in E2 eliminations and Claisen condensations.

17. NaNH2 (Sodium Amide)

Very strong base; used for deprotonation and alkyne synthesis.

Additional Commonly Asked Reagents:

18. AcOEt (Ethyl Acetate)

Solvent; often used in esterification and as a reaction medium.

19. Acid Chlorides (RCOCl)

Reacts with alcohols to form esters, used in acylation reactions.

20. Grignard Reagents (RMgX)

Reacts with carbonyl compounds to form alcohols (e.g., aldehydes and ketones to alcohols).

21. TsCl (p-Toluenesulfonyl Chloride)

Used in tosylation; activates alcohols for substitution or elimination reactions.

22. Friedel-Crafts Catalyst (AlCl3, FeCl3)

Catalyzes electrophilic aromatic substitution reactions.

23. Bromine (Br2)

Used to brominate alkenes or as a reagent in the formation of bromonium ions.

24. I2 (Iodine)

Used in the synthesis of iodoform and other iodine-based reactions.

25. NaCl (Sodium Chloride)

Used to separate organic layers in extraction and to stabilize ionic compounds.

26. KOH (Potassium Hydroxide)

Strong base; used in alcohol dehydroxylation, E2 elimination, and as a reagent in the formation of alkylates.

27. HNO_3 (Nitric Acid)

Oxidizing agent; used in nitration of aromatic compounds.

28. Na_2SO_4 (Sodium Sulfate)

Drying agent for removing water from organic solvents.

29. Tertiary Butyl Hydroperoxide (t-BuOOH)

Used in certain types of oxidation reactions.

30. Azeotropic Distillation Agents (e.g., Benzene, Toluene)

Used to remove water from reactions in azeotropic distillation.