

Rayat Shikshan Sanstha's
Dahiwadi College Dahiwadi
Department of Chemistry
B.Sc.III Chemistry, Organic Chemistry Paper- XV Sem-VI
Question Bank
Topic –Reagents in Organic Synthesis

Select the most correct alternative of the following and rewrite the statement with correct alternative once.

1. The reagent used for the dehydrogenation is,-----
a) DDQ b) CAN c) NBS d) DDC
2. Alkaline hydrolysis of N-nitroso N- alkyl amides forms-----
a) NBS b) DCC c) CAN d) diazomethane
3. The reagent used for methylation reaction is-----
a) CAN b) NBS c) OsO₄ d) CH₂N₂
4. Reacting RCOOH with CH₂N₂ forms the product-----
a) RCOOCH₃ b) RCOCH₃ c) RCH₂CH₃ d) RCHO
5. Photolysis of diazomethane yields
a) ethane b) carbene c) methane d) a polymer
6. Diazomethane needs a Lewis acid catalyst to react with-----
a) Phenol b) HCl c) amine d) carboxylic acid
7. Slowly adding bromine to ice cold solution of succinamide in alkali gives
a) CAN b) NBS c) CH₂N₂ d) DCC
8. Which of the following reagent is an organic compound
a) LAH b) OsO₄ c) Raney Nickel d) DCQ
9. PPA is a-----
a) good solvent b) non-charring compound c) strong dehydrating agent d) all of these
10. Only in presence of Lewis acid diazomethane reacts with-----
a) alcohol b) phenol c) carboxylic acid d) all of these
11. Diazomethane react with aldehyde to give-----
a) methyl ketone b) little epoxide c) higher aldehyde d) ester
12. Diazomethane can be prepared from-----
a) N-nitroso N-methyl amides b) N-nitroso N-methyl -toluenesulphonamide c) Bis-(N- N-nitroso N-methyl) terphliamide d) all of these
13. The reagent SeO₂ is primarily used to oxidize the position.....
a) benzylic b) allylic c) both a and b d) phenolic
14. DDQ is generally used for -----
a) reduction b) hydrolysis c) dehydrogenation d) oxidation
15. Raney nickel is prepared by dissolving a block of Ni-Al alloy in-----
a) aquaregia b) con H₂SO₄ c) con Na₂CO₃ d) 5 molar NaOH
16. Reduction using LAH produces alcohol from-----
a) RCOOR b) RCOOH c) RCOCl d) all of these

17. Osmic acid oxidizes alkenes to-----
 a) Cis-diol b) ketone c) carboxylic acid d) geminal diol
 a)RCOOR b)RCOOH c) RCOCl d) all of these
18. LAH cannot be used in presence of the solvent -----
 a)THF b) protic c) ether d) dioxane
19. Using osmic acid with H₂O₂-----
 a)reduce its toxicity b) poisons osmic acid c) increases solubility d) increases efficiency
20. Oxidation of N,N dicyclohexyl urea by mercuric oxide forms-----
 a)DCC b) CAN c) LAH d) DDQ
21. Heating phenol with alcohol in presence of DCC leads to -----
 a)hydrolysis b)oxidation c) reduction d) dehydration
22. Raney nickel hydrogenates phenol in presence to form-----
 a)cyclohexanol b) cyclohexene c) benzene d) cyclohexanone
23. Reducing agent amongst the following is -----
 a)Raney nickel b) CAN c) SeO₂ d) OsO₄
24. Epoxide is converted into alcohol in presence of-----
 a)LAH/ether/H₃O⁺ b) Raney Nickel c) SeO₂ d) water
25. Nitrobenzene is converted into azobenzene in presence -----
 a)tetra haloalkane b) LAH/ether c) aldehydes and ketones d) SeO₂
26. Cyclobutanone is converted into cyclobutanol in presence of -----
 a)CAN b) DDQ c) LAH/ether/H₃O⁺ d) Tetra haloalkanes
27. Cyclohexene is converted into 2-bromocyclohexene in presence -----
 a)DDQ b) CAN c) benzene d) NBS
28. Isopropanol is converted into acetone in presence of -----
 a)NBS b) DCC c) Raney Ni d) LAH
29. Cyclohexanone is converted into 2-bromocyclohexanone in presence of-----
 a)LAH b) NBS/CCl₄ c) carboxylic acid d) CH₂N₂
30. Acetaldehyde is converted into glyoxal in presence of -----
 a)DDC b) LAH c) SeO₂/aq.dioxane d) NBS
31. Cyclohexanone is converted into cyclohexane-1,2, -one in presence of -----
 a)CAN b) DDC c)LAH d) SeO₂/aq.dioxane
32. Tetralin is converted into naphthalene in presence of-----
 a) DDQ b) CAN c) NBS d) PPA
33. Acetylchloride is converted into ethyl alcohol in presence of
 a) BNS b) LAH/ether/H₃O⁺ c) PPA d) SeO₂

Short answer type questions

Give the preparation and one application of the following reagents

- Lithium aluminium hydride LiAlH₄
- Osmium tetroxide

3. Dicyclohexyl Carbodiimide (DCC)
4. Raney Nickel
5. 2,3-Dichloro -5,6-dicyano – 1,4-benzoquinone (DDQ)
6. Polyphosphoric acid (PPA)
7. Diazomethane
8. Ceric ammonium nitrate (CAN)
9. N-Bromosuccinamide (NBS)
10. Selenium dioxide (SeO₂)

Long answer type questions

Give the preparation and applications of the following reagents

1. Lithium aluminium hydride LiAlH₄
2. Osmium tetroxide
3. Dicyclohexyl Carbodiimide (DCC)
4. Raney Nickel
5. 2,3-Dichloro -5,6-dicyano – 1,4-benzoquinone (DDQ)
6. Polyphosphoric acid (PPA)
7. Diazomethane
8. Ceric ammonium nitrate (CAN)
9. N-Bromosuccinamide (NBS)
10. Selenium dioxide (SeO₂)

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