TB214080W

Reg. No :.....

Name :.....

B.Sc. DEGREE (C.B.C.S.) EXAMINATION, MARCH 2023

(2021 Admissions Regular, 2020 Admissions Supplementary / Improvement, 2019 &2018 Admissions Supplementary)

SEMESTER IV - CORE COURSE (CHEMISTRY)

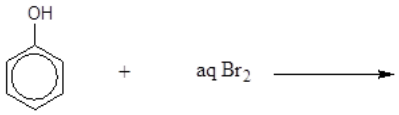
CH4B04B18 - ORGANIC CHEMISTRY – II

Time : 3 Hours **Maximum Marks : 60**

Part A

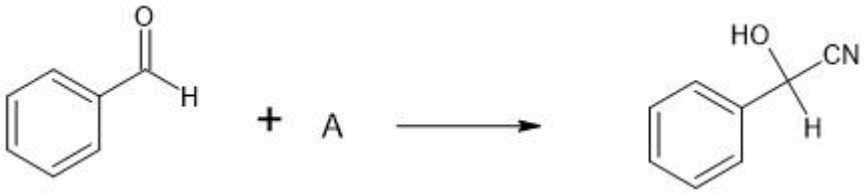
I. Answer any Ten questions. Each question carries 1 mark **(10x1=10)**

1. Outline the preparation of resorcinol.
2. Identify the product:

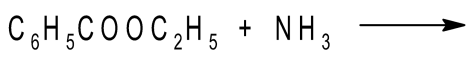


3. Convert: Nitro benzene to phenol.
4. Explain the acidity of the methyl protons in acetaldehyde.
5. Identify the following reaction and explain its significance.

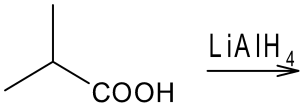
6. Give the preparation of methyltriphenylphosphorane.
7. Find the reagent A in the following reaction



8. Predict the product of following reaction:



9. Describe why acetyl chloride is more reactive than acetic acid.
10. Predict the product:

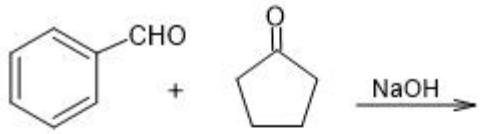


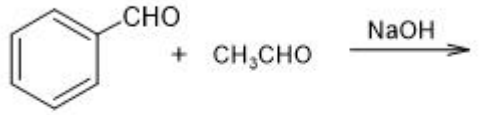
11. Describe the synthetic method for the preparation of citric acid.
12. Predict the product of the reaction between acetic acid and acetyl chloride.

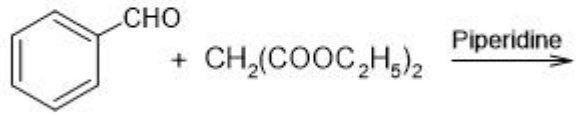
Part B

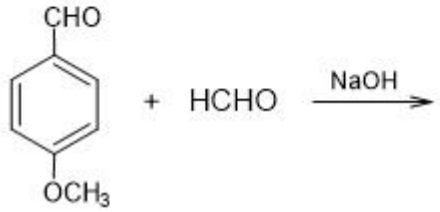
II. Answer any Six questions. Each question carries 5 marks **(6x5=30)**

13. Phenol is acidic. Give reason. Discuss the directive influence of -OH group in phenol towards electrophilic substitution reaction.
14. Convert (i) Ethyl alcohol to diethyl ether (ii) Phenol to m-nitro phenol (iii) Ethanol to methanol
15. Distinguish between (i) ethyl alcohol and methyl alcohol (ii) ethanol and ethanal (iii) ethanol and ethanoic acid.
16. Predict the products of the following reaction:









17. Discuss any three methods used for the preparation of aldehydes taking acetaldehyde as example.
18. (i) Discuss the chemistry of Tollen's and Fehlings test with relevant equations.
    (ii) Explain the oxidation reaction of aldehyde and ketone with $K_2Cr_2O_7$.
19. Explain the following: (i) Ethyl chloride is less reactive towards nucleophilic substitution than acetyl chloride. (ii) Acetyl chloride is more reactive than acetic acid.
20. Predict the structure and name of the products obtained when
    (i) Maleic acid is treated with H_2/Ni
    (ii) Maleic acid is heated at 150^0C for a long duration
    (iii) Salicylic acid is treated with methanol in the presence of acid
    (iv) Citric acid is treated with acetyl chloride
21. Explain the preparation of citric acid by Reformatsky reaction. Describe the possible products formed when citric acid is heated.

Part C

III. Answer any Two questions. Each question carries 10 marks **(2x10=20)**

22. (a) Explain with mechanism the following reactions: (i) Williamson's synthesis (ii) Fries rearrangement (b) Discuss with mechanism cleavage of ether linkage in anisole using periodic acid.

23. (a) Discuss the mechanism of Michael addition. (b) Describe phosphorus ylides and their preparation. Explain the preparation of alkenes using phosphorus ylides.
24. Describe the mechanism of following reactions (i) Meerwein Ponndorf Verley (MPV) reduction (ii) Benzoin condensation (iii) Cross –Aldol condensation
25. Compound A and B are isomers having the molecular formula $C_8H_{10.}$ Oxidation of A gives benzoic acid while oxidation of B gives phthalic acid which forms an anhydride on heating. Give the structures of A and B and write equations for the reactions involved.