TB254911Z

Reg. No :.....

Name :.....

BACHELOR'S DEGREE (C.B.C.S) EXAMINATION, MARCH 2025

2018, 2019, 2020, 2021, 2022 ADMISSIONS SUPPLEMENTARY

SEMESTER IV - CORE COURSE (CHEMISTRY)

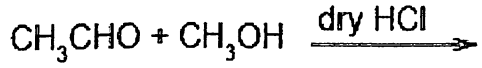
CH4B04B18 - Organic Chemistry – II

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

Part A

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

1. Outline one method for the preparation of dimethyl ether.
2. Predict the product formed when propylene oxide reacts with lithium aluminium hydride.
3. Ethers cannot be stored in air or oxygen for a long time. Illustrate.
4. Predict the product:



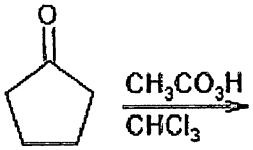
5. Give the preparation of acetaldehyde from ethanol.
6. Describe the reaction of acetaldehyde with Fehling's solution.
7. Describe the synthesis of cinnamaldehyde from benzaldehyde.
8. List a method for the preparation of benzene sulphonic acid.
9. Rank the following compounds in order of increasing acidity: Ethanol, 4-methylbenzoic acid, benzoic acid
10. Arrange the following in descending order of their acid strength: p-toluic acid, p-bromobenzoic acid, benzoic acid, phenylacetic acid.
11. Describe the synthetic method for the preparation of citric acid.
12. Predict the product of reaction between citric acid and HI.

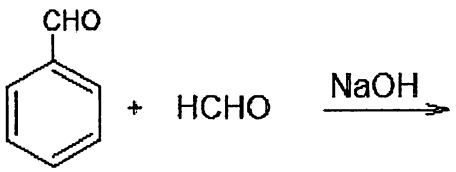
Part B

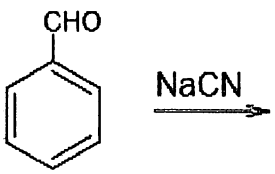
II. Answer any Six questions. Each question carries 5 marks **(6x5=30)**

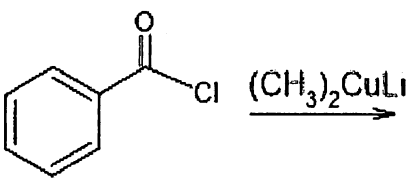
13. Identify cumene? Explain the cumene process for the manufacture of phenol. Discuss the industrial importance of the process.
14. Predict the product formed when (i) Phenol is distilled with Zinc dust (ii) Allyl alcohol is treated with osmium tetraoxide (iii) 2-buteneol is treated with PCC (iv) Ethylene oxide is treated with ammonia (v) Methyl phenyl ether is treated with HI
15. Comment on the electrophilic substitution reactions of phenol with one example each.

16. Predict the product of following reactions:









17. Predict the product formed when (i) CH_3-CH=CH-CHO is reduced with $NaBH_4$
    (ii) C_6H_5CH=CH-CHO is reduced with $LiAlH_4$
    (iii) Butanone is reduced with Zn/HCl.

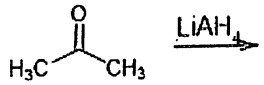
18. Discuss any three methods used for the preparation of aldehydes taking acetaldehyde as example.
19. Explain what happens when phthalic acid is a)Heated with phenol in the presence of anhydrous zinc chloride b)Heated with resorcinol in the presence of concentrated sulphuric acid c)Heated alone.
20. Describe one method of preparation with equations of the following compounds: (i)Fumaric acid (ii) maleic acid (iii) phthalic acid
21. Describe the reaction of salicylic acid with
    (i) $NaHCO_3$
    (ii) NaOH
    (iii) CH_3OH/H^+
    (iv) Con. HNO_3

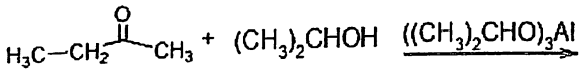
Part C

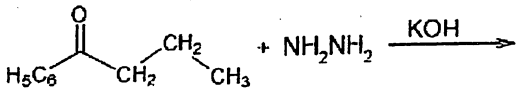
III. Answer any Two questions. Each question carries 10 marks **(2x10=20)**

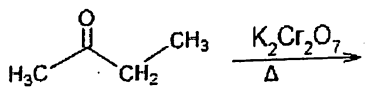
22. Explain with mechanism following reactions: (i) Pinacol-Pinacolone rearrangement (ii) Oppenauer oxidation (iii) Fries rearrangement

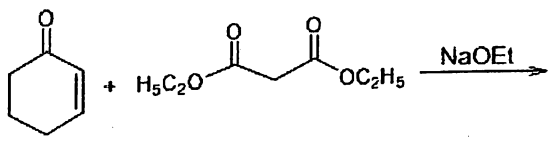
23. Predict the products obtained in following reactions:

i) 

ii) 

iii) 

iv) 

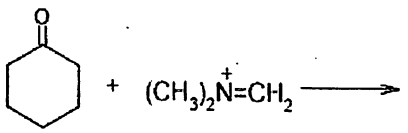
v) 

vi) $CH_3CHO + Ph_3P{=}CHCH_3 \longrightarrow$

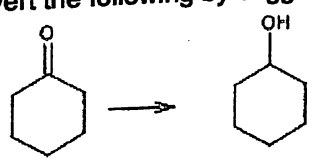
vii) $(CH_3)_3CCHO + NaOH \longrightarrow$

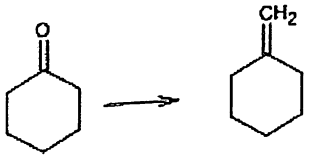
viii) $C_6H_6 + C_6H_5COCl \xrightarrow{AlCl_3}$

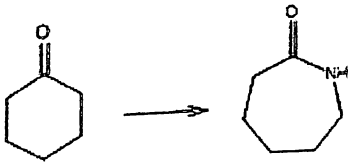
ix) $C_6H_5CHO + C_6H_5NH_2 \longrightarrow$

x) 

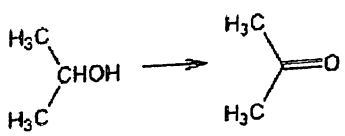
24. Convert the following by suggesting suitable reagents:

i) 

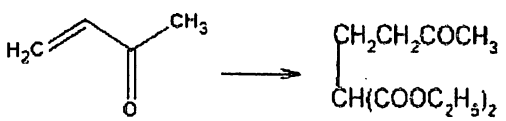
ii) 

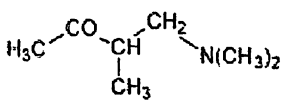
iii) 

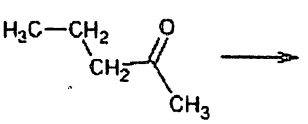
iv) 

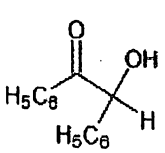
v) 

vi) $C_6H_5CH_3 \longrightarrow C_6H_5CHO$

vii) 

viii) $CH_3COCH_2CH_3 \longrightarrow$ 

ix)  $\longrightarrow CH_3CH_2CH_2CH_2CH_3$

x) $C_6H_5CHO \longrightarrow$ 

25. a) Discuss the comparative reactivity of acyl halides and alkyl halides towards nucleophilic attack. b)Explain in detail the acid catalysed hydrolysis of esters.