

2021  
B.A./B.Sc. Part III Honours Examination  
University of Calcutta  
CHEMISTRY  
Paper VIII  
Group A  
F.M. 50  
Time: 3hrs.

FAKIR CHAND COLLEGE CENTRE (551)

*[Use A4 pages and black ink only for writing answers. Write Roll number and Registration number at the top and page number at the bottom of each page. Scan you admit card and make a single pdf file with the answer script.]*

1. A known solid organic compound, 4-Aminobenzoic Acid, is supplied to you. Write down the detail analysis (qualitative) of the compound as you have performed [Lassaigne's Test (N,S,Cl), Solubility and Classification ( $H_2O$ , 5% HCl, 5% NaOH, 5%  $NaHCO_3$ ), Detection of Functional Groups (both positive and negative tests are to be reported)](2x3)+(1x4)+2+(3x6) = 30
2. Lab-quiz2x10=20

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**LAB-QUIZ**

- i) Nitrobenzene can be reduced to aniline by heating with Sn and Conc. HCl. Can Zn be used instead of Sn during this reduction? If not, why?
- ii) During detection of nitrogen by Lassaigne's test; what function does Ferrous Sulphate solution perform? Answer with relevant equation(s).
- iii) Can  $Na_2CO_3$  be used to detect carboxylic acid functionality?
- iv) During azo dye test of aromatic primary amine what happens if the solution of 2-Naphthol is not properly made alkaline?
- v) Why in presence of aromatic primary amine; aromatic nitro group cannot be detected by azo dye test?
- vi) Give the product formed when nitrobenzene is reduced in neutral condition? Suggest the reducing agent involved.
- vii) Give the detection test of sulphur with the relevant equation during Lassaigne's test.
- viii) Write down the composition of Tollen's reagent. How is this prepared in laboratory?
- ix) What happens when resorcinol reacts with freshly prepared ferric chloride solution? Give the reaction involved.
- x) During Lassaigne's test of p-chloroaniline what will happen when silver nitrate test is performed after sodium fusion? Write the product formed when the product of the above silver nitrate test reacts with dilute ammonium hydroxide solution.