BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: IMSC **SEMESTER : III**
BRANCH: CHEMISTRY **SESSION : MO/19**

SUBJECT: CH203 ORGANIC CHEMISTRY II

TIME: 3 HOURS **FULL MARKS: 50**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a) Write the mechanism of Wurtz coupling and comment on the side reaction of the process. Describe the S_NAr mechanism with suitable example. [5]

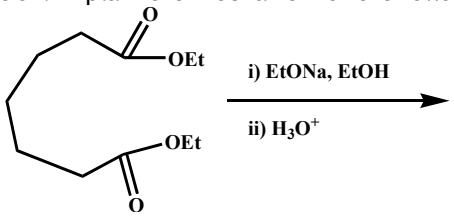
Q.1(b) Explain S_Ni mechanism. From the mechanism of S_N1 explain the role of solvent and its polarity to direct the stereochemistry of the process. [5]

Q.2(a) Why is the order of ease of formation of alkoxide from primary, secondary and tertiary alcohol? Explain the method of preparation of phenol from cumene (isopropyl benzene) with mechanism. [5]

Q.2(b) Explain the order of acidity of compounds; Phenol, p-Nitrophenol, p-chlorophenol, p-methylphenol and p-methoxyphenol. Write down the mechanistic details for epoxide ring opening by acid and base catalysed pathway. [5]

Q.3(a) Discuss briefly about nucleophile addition reaction with carbonyl group. Write short note on parkin condensation. [5]

Q.3(b) What is 1,2 and 1,4 addition with unsaturated carbonyl compound? What should be nature of nucleophile to favour either 1,2 or 1,4 addition? Explain the mechanism of the following reaction. [5]



Q.4(a) Describe the esterification mechanism of acetic acid with octane-2-ol in presence of sulfuric acid. Ester and amide give different product on reduction by $LiAlH_4$ – Explain the statement with the help of mechanism. [5]

Q.4(b) What happen when acetoacetic acid is treated with aqueous acid at 25°C? Write short note on thermal behaviour of hydroxy acid. [5]

Q.5(a) What is mode of action of mustard gas? Explain the major product obtained for the reaction of $MeCH=CH_2$ with H_2S in presence of NiS catalyst at 300°C. Write down the steps for preparation of saccharin from toluene. [5]

Q.5(b) Write the dye preparation method and mechanism from sulfanilic acid. Draw the steps for the preparation of sulfonamide from benzene. [5]

:::::02/12/2019:::::M