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

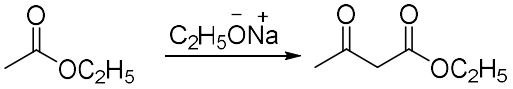
CLASS: I. M. Sc. **SEMESTER: IV**
BRANCH: CHEMISTRY **SESSION: SP-2023**

SUBJECT: CH218 ORGANIC CHEMISTRY-III

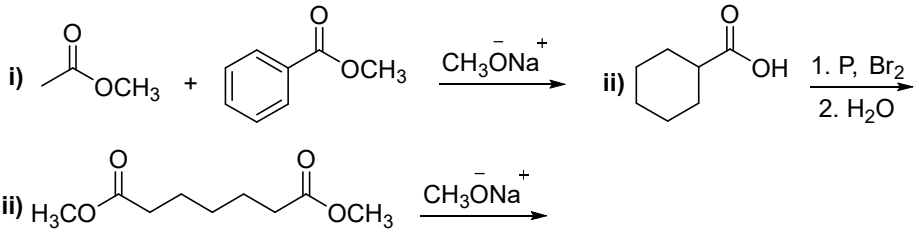
TIME: 3 Hours **FULL MARKS: 50**

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.

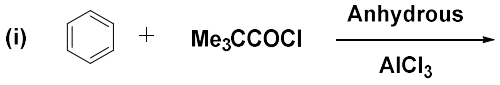
		Marks	CO	BL
Q.1(a)	Write the mechanism of following reaction.	[5]	1	2

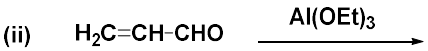


Q.1(b)	Write the structure of product(s) obtained from following reactions.	[5]	1	4



Q.2(a) (i) Write down the product of the following reactions with giving appropriate mechanism. [2.5+2.5] 1 3

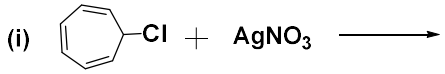


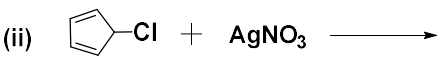


(ii) Give the products(s) of reaction of MeMgI(1mole) with each of the following compounds:

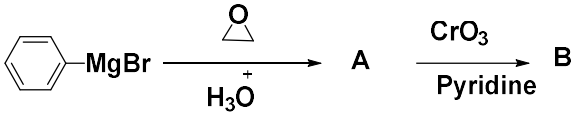
(i) $HC(OEt)_3$ (ii) $Et-C\equiv CH$ (iii) $H_3C-\underset{\underset{O}{\|}}{C}-CH_2CO_2Et$

Q.2(b) (i) Predict the product(s) if any and explain [3+2] 1 4





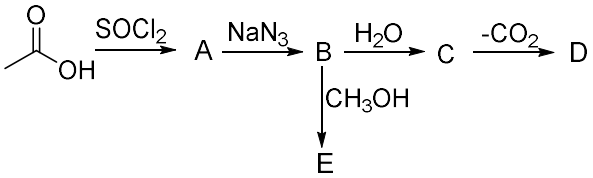
(ii) Carry out the following transformations.



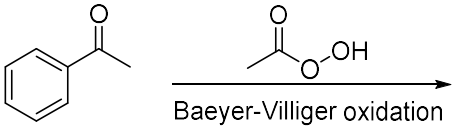
PTO

Q.3(a)	Write a short note on Nef carbonyl synthesis.	[5]	3	1
Q.3(b)	Describe any two methods for the synthesis of amines.	[5]	3	1

Q.4(a)	Write the structures of A, B, C, D and E obtained from the following reactions.	[5]	4	3

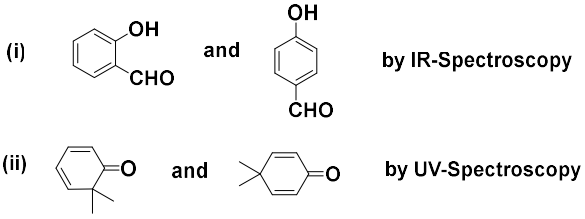


Q.4(b)	Write the mechanism of following reaction.	[5]	3	1



Q.5(a)	(i) Relate the λ_{max} values of (i) 277 and 185 nm and (ii) 324 and 219 nm of the compounds $CH_3COCH_2CH_3$ and $CH_3COCH{=}CH_2$. Identify the electron transition in each case. (ii) Compare the 'C=O' stretching frequencies of acetone and hexamethyl acetone and explain.	[3+2]	1	3

Q.5(b)	(i) How can you distinguish the following molecules?	[3+2]	2	4



(ii) Comment on the UV spectral nature of phenol and p-nitrophenol in alkaline solution.

::::::26/04/2023::::::M