

Exam. Code : 103204

Subject Code : 1343

B.A./B.Sc. Semester—IV

CHEMISTRY (Organic Chemistry—III)

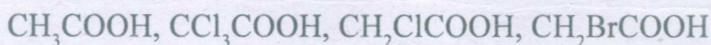
Time Allowed—3 Hours]

[Maximum Marks—35

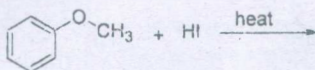
PART-A

(Attempt ALL the questions)

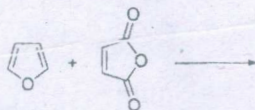
1. Arrange the following acids in increasing order of their acidic characteristics :



2. What is trans-esterification ?
3. Complete the following reaction :



4. Why 2,4,6-trinitrophenol is an acid ?
5. Arrange the following compounds in increasing order of their basicity :
Ammonia, Aniline, p-nitroaniline, o-nitroaniline, m-nitroaniline.
6. Justify the observation that o-hydroxybenzoic acid is a stronger acid than o-methoxybenzoic acid.
7. What happens when CH_3MgBr is added to crotonaldehyde ?
8. Complete the following reaction :

 $8 \times 1 = 8$

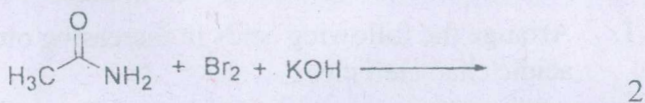
PART-B

SECTION-I

(Attempt any TWO questions)

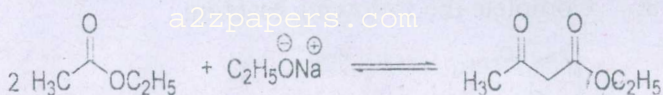
9. (a) Fluoroethanoic acid is a stronger acid than chloroethanoic acid but p-fluorobenzoic acid is a weaker acid than p-chlorobenzoic acid. How do you justify? 2.5

- (b) Complete the following reaction and provide a suitable mechanism :

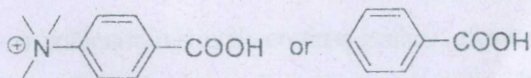


2

10. (a) Complete the following reaction and provide a suitable mechanism : 3



- (b) Which acid of the following pair would you expect to be stronger and why? 1.5



11. (a) Give probable mechanism of acidic hydrolysis of esters. 3

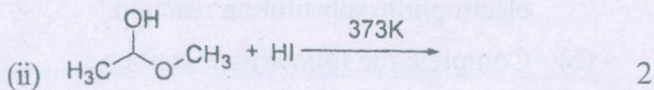
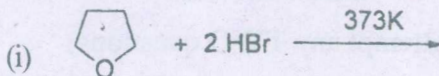
- (b) Acid chlorides are easily hydrolyzed than acid amides, explain. 1.5

SECTION-II

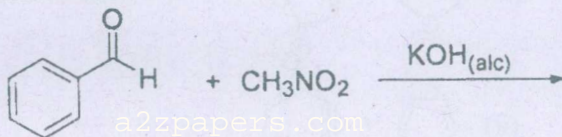
(Attempt any TWO questions)

12. (a) How will you prepare ethoxycyclopentane by Williamson ether synthesis ? 2.5

(b) Complete the following reactions :

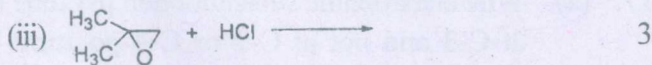
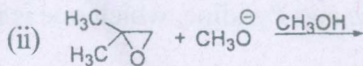
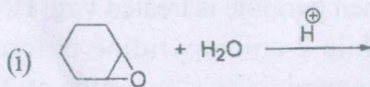


13. (a) Complete the following reaction and provide a suitable mechanism : 2

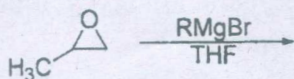


(b) Using Hinsberg reagent, how will you distinguish between aliphatic primary, secondary and tertiary amine ? 2.5

14. (a) Complete the following reactions :



- (b) Write down the product and mechanism of following reaction :

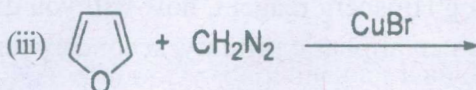
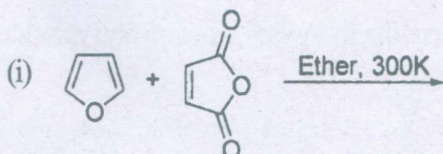


1.5

SECTION-III

(Attempt any **TWO** questions)

15. (a) Explain the low reactivity of pyridine towards electrophilic substitution reaction. 1.5
- (b) Complete the following reactions :



3

16. (a) How do you account for the fact that 3-nitropyridine is formed when pyridine is treated with $\text{HNO}_3/\text{H}_2\text{SO}_4$ at 573 K while 2-aminopyridine is formed when pyridine is treated with soda amide at 373 K. 3
- (b) Out of Aniline and Pyridine, which one is more basic and why? 1.5
17. (a) Why electrophilic substitution in pyridine takes place at C-3 and not at C-2 or C-4 position? 3
- (b) State and explain Simmons-Smith reaction. 1.5