

S.NO: 22N1-UCH

Course Code: BQH

A.D.M.COLLEGE FOR WOMEN, NAGAPATTINAM

(AUTONOMOUS)

B. Sc. (Chemistry) Degree Examination

V Semester – November – 2022

CC VIII – ORGANIC CHEMISTRY I

Time: 3 hours

Maximum Marks: 75

Section –A

10X2=20

Answer ALL the Questions:

1. Name the compounds: a)  $\text{CH}_3\text{CHBrCH}_2\text{COCH}_3$   
b)  $\text{PhCH}_2\text{COCH}_2\text{CH}_3$
2. Write down the two enol forms possible for  $\text{CH}_3\text{COCH}_2\text{CH}_3$ .
3. What is *ortho* effect? Give an example.
4. How are soaps prepared?
5. What is TNT? Give its structure.
6. How is scarlet red dye prepared from aniline? Give the reactions.
7. Which is basic pyridine or pyrrole? Why?
8. Give an example for Chichibabin reaction.
9. What is PCC? What is selectivity in oxidation?
10. What is Wilkinson catalyst? What is its use?

**Section -B**

**5X5=25**

Answer **ALL** the Questions:

11. a) Explain the general mechanism of nucleophilic addition reactions of aldehydes and ketone. Explain the two reasons for the higher reactivity of aldehydes than ketones.

**(or)**

- b) Explain Robinson annulation in detail with an example.

12. a) Explain the mechanism of acid catalysed hydrolysis of ester with an example.

**(or)**

- b) Explain any one synthetic application of acetoacetic ester and malonic ester each.

13. a) Compare the basic strength of substituted anilines with suitable examples.

**(or)**

- b) Discuss the mechanism of nitration of benzene in detail.

14. a) Give an example each for Skraup and Napieralski syntheses.

**(or)**

- b) How are methyl orange and fluorescein prepared? Give the necessary structures.

15. a) Give an example each for the uses of osmium tetroxide and chromyl chloride as oxidizing agents.

**(or)**

b) What are the uses of  $LiAlH_4$  and  $NaBH_4$  as the reducing agents of various carbonyl compounds? Give examples.

**Section -C**

**3 X 10 = 30**

Answer any **THREE** Questions:

16. Explain the mechanisms of: (a) aldol and (b) Claisen condensations in detail with suitable examples.
17. (a) Discuss the mechanism of nucleophilic substitution reactions at the carbonyl carbons of carboxylic acid derivatives such as esters, anhydrides, acid halides, amides and carboxylate salts.
- (b) Arrange them according to their reactivity. Account for the differences in the reactivity of them with examples.
18. (a) Explain the reduction of nitrobenzene under different medium with necessary equations.
- (b) How are primary, secondary, and tertiary amines differentiated in Hinsberg test?

19. (a) How are five membered heterocycles synthesised?  
(b) Explain Fischer-Indole synthesis in detail.
20. (a) What is Dess-Martin oxidation? Give an example.  
(b) Give examples for reduction reactions using hydrazine and  $\text{Na}(\text{BH}_3\text{CN})$

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