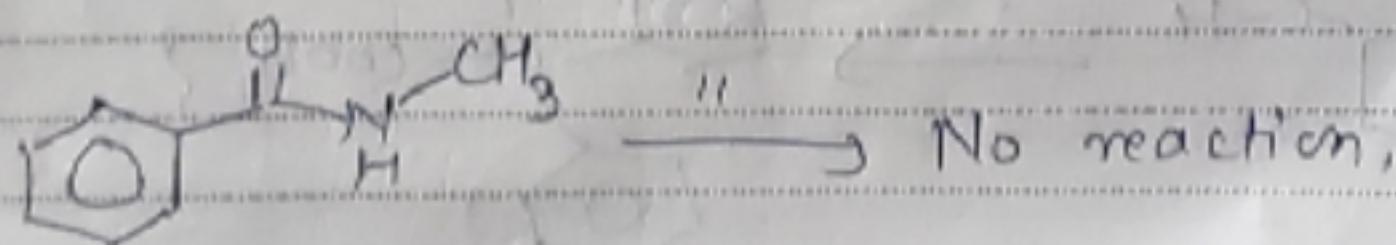
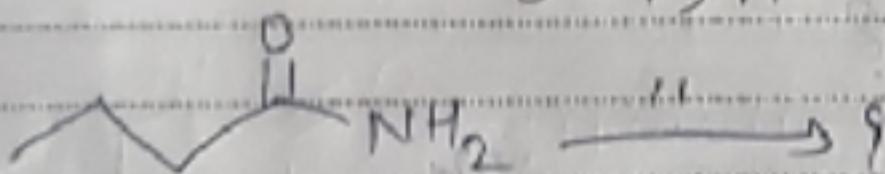
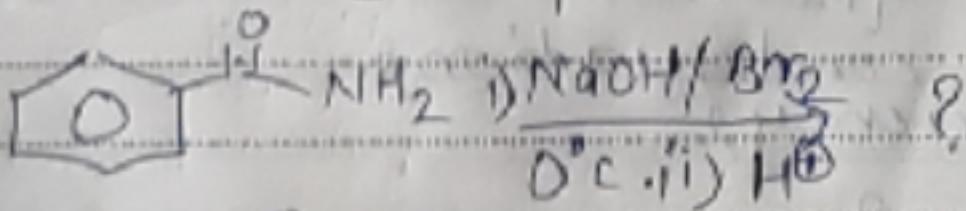


Attempt following chemical conversion.

- Bengaldehyde → Bengalic acid
- Phthalic acid → O-Aminobenzoic acid
- Phthalic acid → Phthalimide
- Benzoyl chloride → Hippuric acid
- Resorcinol → Resacetophenone

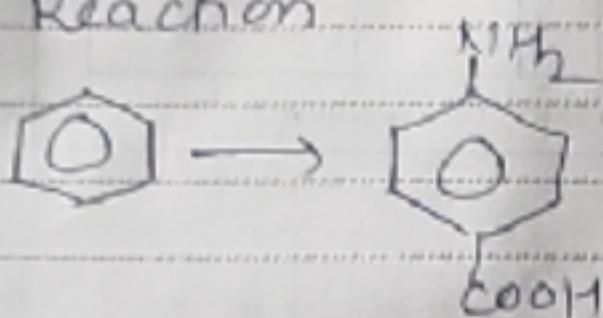
Anthranilic Acid

- 1) Why do you have to maintain 0°C in this synthesis?
- 2) What is isoelectric pH/point?
- 3) What is role of NaOH in this synthesis?
- 4) What is hydrolysis reaction? Which catalysts are used for hydrolysis reaction?
- 5) What is role of glacial acetic acid in acidify?
- 6) How do you get sodium hypobromite? What is its role?
- 7) Mechanism of Hoffmann rearrangement.
- 8) Calculation based questions:
 - a) yield / mole to mole
- 9) Reactions (complete the reaction)



PnBA from P-nitro benzoic acid

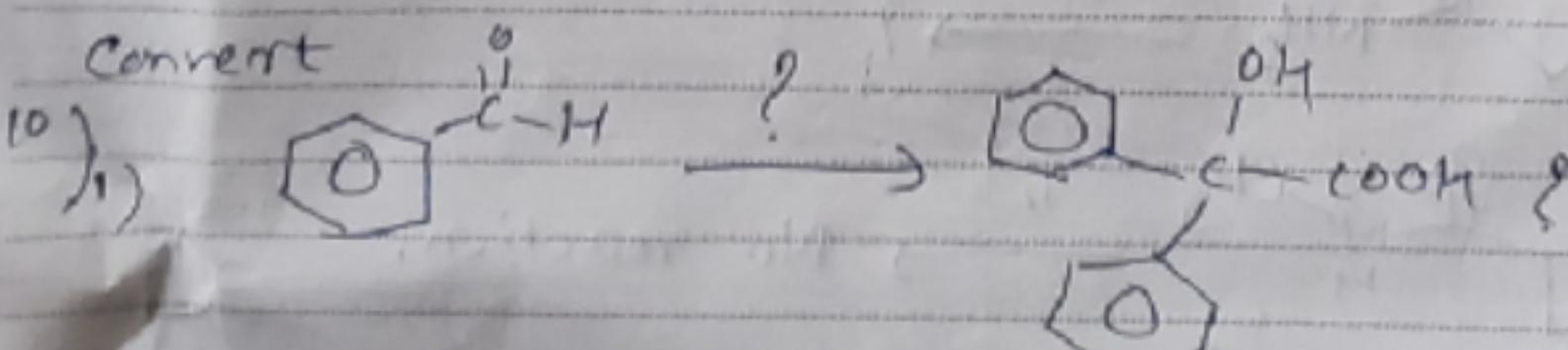
- 1) Define oxidation reaction with example.
- 2) Define reduction reaction with example.
- 3) Give examples for various oxidizing agents.
- 4) Give examples for various reducing agents.
- 5) What is role of powdered tin?
- 6) What is role of conc. ammonia solution?
- 7) What is filter aid?
- 8) What is role of glacial acetic acid?
- 9) Calculation.
- 10) What is digestion?
- 11) Reaction



(carry out this conversion)

Benzillic acid from Benzil

- 1) Give example of electrophile and nucleophile in this reaction.
- 2) What is 1,2-phenyl shift?
- 3) & What is benzillic acid rearrangement?
- 4) What is role of HCl?
- 5) Differentiate b/w commercial & green synthesis of benzillic acid.
- 6) Calculation based question.
- 7) What is benzoin condensation?
- 8) What is atom efficiency?
- 9)

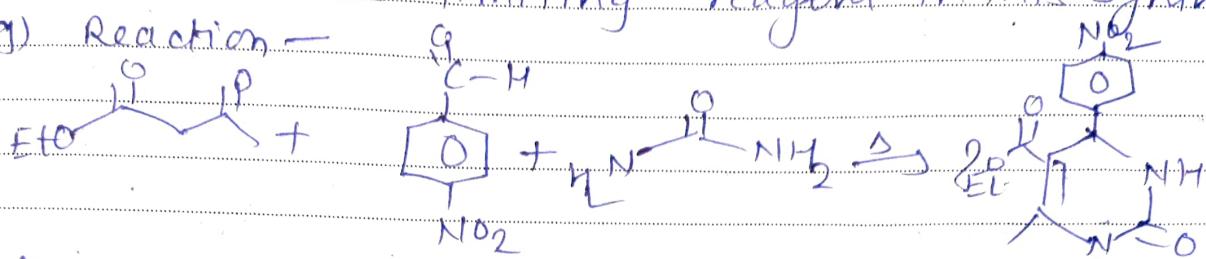


- ii) What is migratory aptitude?

Dihydropyrimidinone

- 1) What is keto-enol tautomerism (give example)
- 2) What is one pot synthesis. Give example.
- 3) Write mechanism for Dihydropyrimidinone.
- 4) What is Biginelli reaction?
- 5) What is aldol condensation reaction (give ex.)
- 6) Yield calculation
- 7) Mole: Mole calculation
- 8) What do you mean by limiting reagent?
Which will be limiting reagent in this synth.

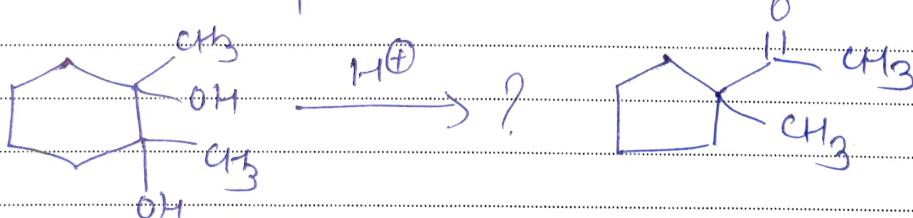
g) Reaction -



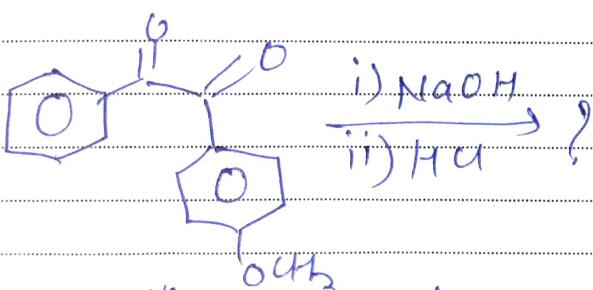
- 10) What is cross aldol reacn / mixed aldol reacn.

Phenytoin

- 1) What is pinacol rearrangement.
- 2) What is migratory aptitude.
- 3) What is role of NaOH?
- 4) Which is electrophile & nucleophile in this reacn?
- 5) What is carbocation?
- 6) What do you mean by good leaving group
- 7) What is complete reacn.



- 8) Mechanism



- 9) calcul'n for yield.

- 10) examples of 1,2-diols.

Hippuric acid

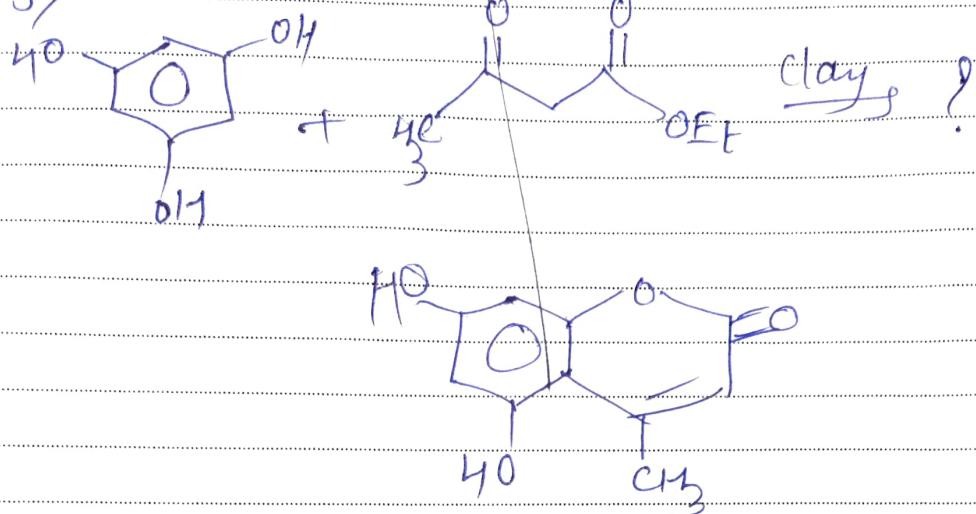
- 1) Mechanism
- 2) What is the leaching gr. in this med (-er)
- 3) What is role of NaOH?
- 4)

The diagram shows a chemical reaction. On the left, there is a chemical structure labeled "Hippuric acid". It consists of a cyclohexene ring with a carboxylic acid group (-COOH) at one end and a phenylhydrazine group (-C₆H₅NHNH₂) at the other. An arrow points from this structure to the right, indicating a transformation. On the right side, the resulting product is shown: a cyclohexene ring with a phenylhydrazine group (-C₆H₅NHNH₂) attached to one of the ring carbons.
- 5) What is role of conc.HCl?
- 6) Yield calculn
- 7) Mole : Mole ratio.

Coumarin

- 1) What is Pechmann condensation?
- 2) Role of clay (Kmontmorillonite)?
- 3) Which carbon of ethylacetacetate is more electrophilic? Why?
- 4) What is intramolecular Michael reaction?

5)



- 6) What can be ~~replaced~~? Can we replace clay with $\text{AlCl}_3 \rightarrow$ yes.

7) calculn.

Types of Questions

Question
No.

Q. 1 Explain reaction mechanism involved in synthesis of following or.

Explain reaction mechanism along with principle involved in synthesis of -

- (a) Benzoic acid from benzil
- (b) Anthranilic acid from phthalimide
- (c) PAIBA from p-nitro benzoic acid
- (d) one pot synthesis of Ninydroxypyrimidine
- (e) Phenytoin
- (f) 4-methyl carbostyrol

Q. 2 Calculate atom economy / efficiency for following synthesis -

- (a) Benzoic acid from benzil (Green method)
- (b) Benzoic acid from benzil (Conventional)
- (c) Anthranilic acid

Q. 3. Phthalimide reacts to give o-amino benzoic acid in 75% yield. Product obtained is 4 gm. Find out the amount of reactant used.

Q. 4. 5 gm. of benzil undergoes rearrangement reaction to yield 70% benzoic acid. Find out amount of benzoic acid obtained.

Q. 5. Identify and name / type of reaction involved in synthesis of compounds to synthesized in laboratory.

1. Explain role of conc HCl and gl. acetic acid in synthesis of anthranilic acid.
 2. What is isolectric point?
 3. What is role of urea and sodium hydroxide in synthesis of Phenytoin?
 4. Elaborate the name Hoffmann degradation.
 5. Why is it necessary to add bromine solution at 0°C in synthesis of anthranilic acid.
 6. Explain migratory aptitude of various groups in pinacol - pinacolone rearrangement reaction with suitable example.
 7. Write reaction mechanism involved in synthesis of 4-methyl carbostyrol.
 8. Define Reducing agent
oxidising agent
Nucleophile
Electrophile
- Types of reaction : - Substitution, Addition, rearrangement, elimination.
- Acid, Base

Resacetophenone (2,4-dihydroxyacetophenone)

- v) What is Hoesch reaction?
 - 2) What is imine? Give ex. (ketimine)
 - 3) What is the role of zinc chloride?
 - 4) Why we require anhydrous zinc chloride?
 - 5) What is polyhydroxy phenols (give ex.)
 - 6) Which is electrophile in this reagent?
- 7)
- 8) Mechanism
- g) calc of yield.
 - 10) Mole: Mole ratio.