UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Seventh Semester – Spring 2022

Roll No. .....

Paper: Organic Chemistry (Sp. Theory-II) **Course Code: CHEM-410** **Time: 3 Hrs.** **Marks: 60**

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.No.1. Answer the following short questions: (6x5=30)

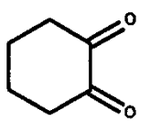
1. How pyridine reacts with the following reagents?

i) $NaNH_2$ at 100 °C ii) fuming H_2SO_4 at 250 °C iii) KNO3/ H_2SO_4 at 300 °C

2. Describe Beckmann rearrangement with mechanism and example?

3. Discuss stereochemistry and possible applications of Baeyer-Villiger oxidation?

4. What are the products formed when following α-diketones undergo the benzylic acid rearrangement?

i) 

ii) $CH_3COCOCOOC_2H_5$

5. Describe Benzyne mechanism?

6. Halogens deactivate the ring through inductive effect but direct substitution to the ortho and para position, comment?

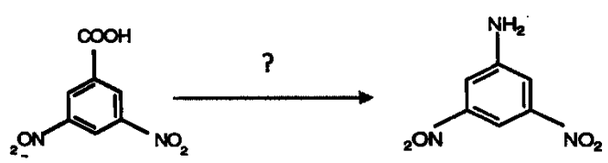
Answer the following questions.

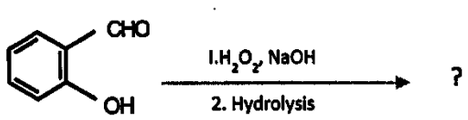
Q.2. (1) How would you synthesize following using benzene. Write complete mechanism of each step involved. **9**

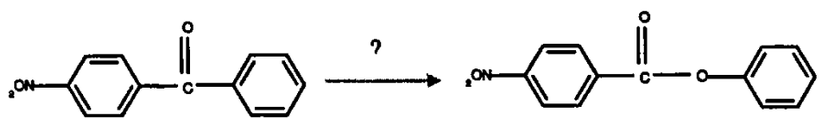
i) m-bromobenzene sulphonic acid ii) o-bromonitrobenzene iii) meta cresol

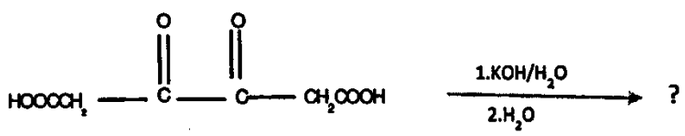
(2) Describe one method each for synthesis of pyrrole and pyridine? **6**

Q.3. Complete the following reactions and draw their mechanisms? (3 X 5 = 15)

i) 

ii) 

iii) 

iv 

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