



Academic Year : 2013-2014
Second Term
Date : 1/6/2014
Time : 2 hrs

Final Exam : Special Organic Chemistry
Agricultural Biotechnology Program
(3rd Level)
Total Degree : 60
The exam in one paper on two faces

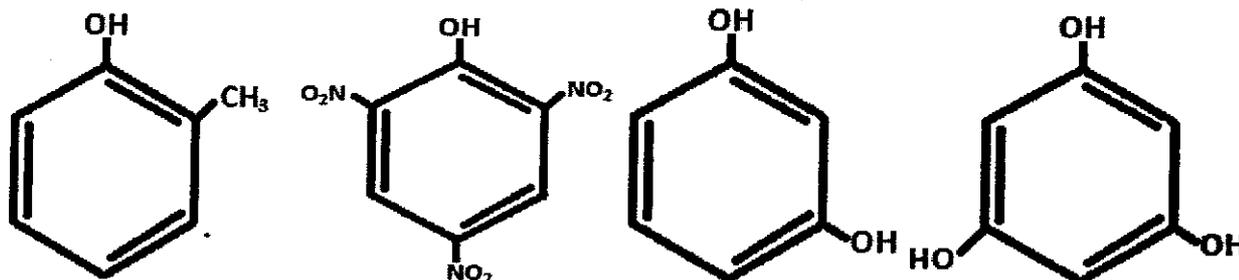


Mansoura University
Faculty of Agriculture
Agric. Chem. Dept.

Answer the following questions :

Question 1: (15 degree/5 for each part)

- a- What are phenols ? and how can you distinguish between phenols , alcohols and organic acids (write the answer in table)
- b- Write the systematic and common names of the following structures :



c- Describe the following methods (with writing equations) for preparation of phenol :

- (1) By heating P-chloronitrobenzene with NaOH
- (2) By oxidizing aromatic Grignard compounds followed by hydrolysis

Question 2: (15 degree/5 for each part)

- a- Explain: phenol is more acidic than ethyl alcohol
- b- phenol can be nitrated with nitric acid .Write the mechanism of this reaction and nomenclature of products
- c- what is the action of phenol on the following :
- 1- Zn (with heating)
 - 2- excess of bromine (Br₂)

Question 3: (15 degree/5 for each part)

- a- Picric acid is a phenolic compound but it called acid without it contains carboxylic group. Describe the action of nitro groups in the structure of picric acid .
- b- Give three important uses of both phenol and catechol .
- c- how does sodium phenoxide react with :
- 1- CO₂ (Kolbe reaction , 125 c°) [with nomenclature the products]
 - 2- CH₃I (Williamson reaction) [with nomenclature the products]

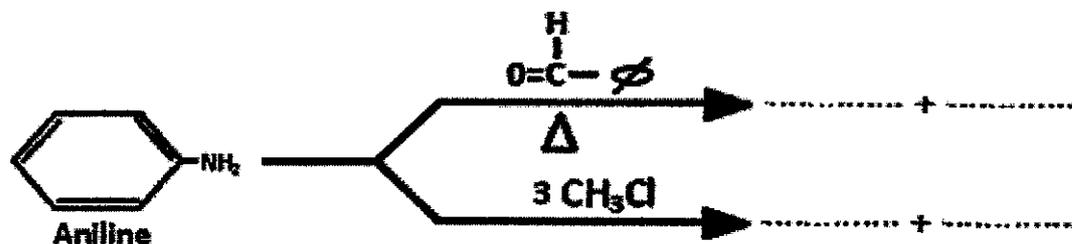
Question 4: (15 degree/5 for each part)

a- Write the methods of preparation of aniline by using nitro benzene with :

1- Active hydrogen [H] in the presence of Zn/Hcl

2- Titanous chloride $TiCl_2$ in the presence of Hcl

b- Complete the following reactions with nomenclature of products :



c- Show the importance of schiff's bases ?

with our best wishes

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