



Academic Year : 2012-2013  
Second Term  
Date : 4/6/2013  
Time : 2 hrs

Final Exam : Special Organic Chemistry  
Agricultural Biotechnology Program  
(3<sup>rd</sup> Level)  
Total Degree : 60  
The exam in two papers

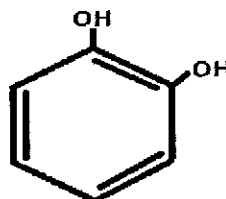
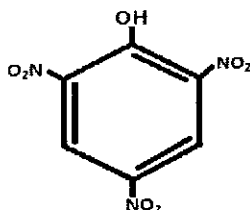
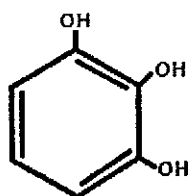


Mansoura University  
Faculty of Agricultural  
Agric. Chem. Dept.

Answer the following questions :

**Question:1** (15 degree/3 for each part)

- a- Phenols are acidic in character , while alcohols are almost neutral . explain in detail.  
b- Write the systematic and common names of any of the following structures



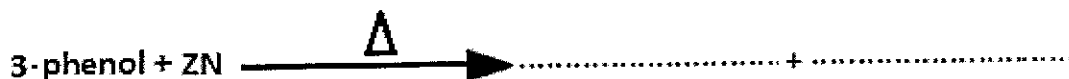
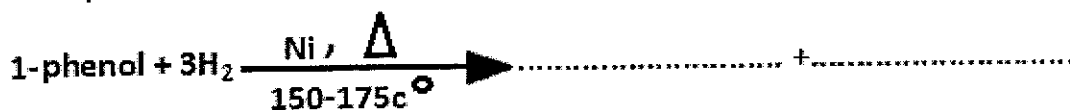
- c- Describe the following methods (with writing equations) for preparation of phenol :

(1) Distillation of diazonium salt  $\phi-N=N-Cl$  with steam

(2) By oxidizing cumene at 130 C° with a catalyze

(3) By reacting sodium benzene sulphonate with NaOH

- d- Complete the following reactions with writing the scientific name of products



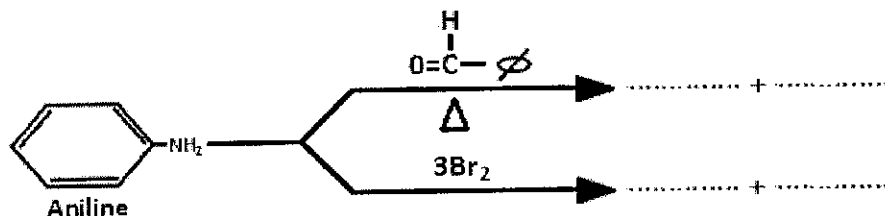
- e- Give four important uses of phenol

**Question:2** (15 degree/3 for each part)

- a- How are aromatic amines defined ?

- b- Give two methods for preparation of aniline

- c- Complete the following reactions with nomenclature of products



- d- Discuss the importance of acetylation reaction in aromatic primary amine (Aniline) with writing the equations.

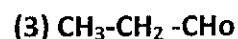
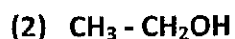
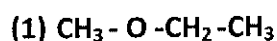
- e- Tertiary amine has obtained by Hofmann elimination on the following compound "Ethyl trimethyl ammonium iodide" in the presence of AgoH , Pyrolysis , explain the reaction .

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

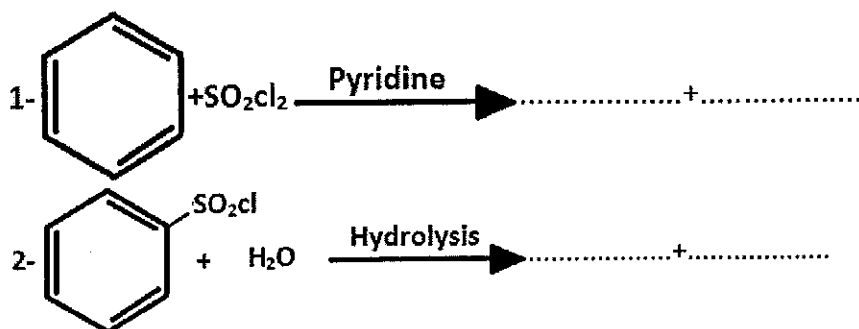
- a- What are alkaloids
- b- Write the structure formula of caffeine
- c- Discuss the physiological activity of morphine and coniine
- d- Write general scheme for extraction of alkaloids.
- e- What is the meaning of the sentence " Hofmann elimination reaction followed two mechanical steps of elimination" (  $E_2$  ).

**Question:4** (15 degree/3 for each part)

a-write the names of sulphur compound derived from the following corresponding compounds



b-complete the following reactions with writing the name of products



c-How can you prepare Triethyl Phosphite in the presence of  $\text{SOCl}_2$

d- Starting with benzene , how can you prepare phenyl phosphine , diphenyl phosphine, phenyl dihydroxy phosphine and phenyl diethoxy phosphine in the presence of ( $\text{PCl}_3$  ,  $\text{AlCl}_3$  ,  $\text{EtOH}$  ,  $\text{H}_2$  ,  $\text{NaOH}$  and benzene)

e- what are the names of salts corresponding to the following phosphorus acids

1-phosphonic acid

2- phosphonic acid

3- phosphoric acid

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**with our best wishes**

Prof. Dr/ Hassan Barakat

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