AL- Azhar Univ.

Faculty of Pharmacy

FINAL EXAM.
ORGANIC CHEMISTRY [2]
2011-2012

100

Q. No.	Point value	Points earned
1		
2		
3		
4		
5		
6		
7		
8		
9		
Total	100	

Notes:-

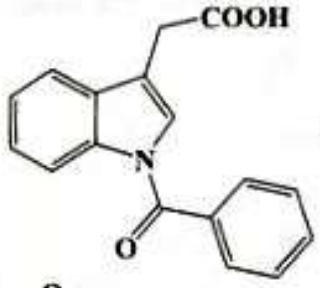
1- Neatness is your advantages
2- Be sure to read each question carefully
3- It might be helpful to skim the entire exam and solve the easier question first

Student's Name: ----------

Student's Number: ----------

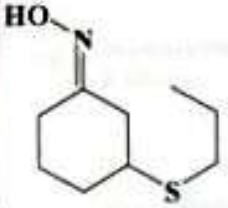
2011 - 2012

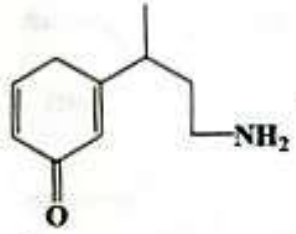
Q1. Provide the missing reagents and products:

a) 

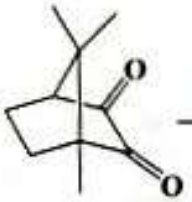
Hydrolysis → 1 + 2

b) 

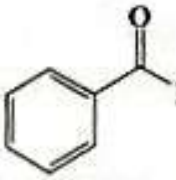
→ 3 → 4 → 

c) 

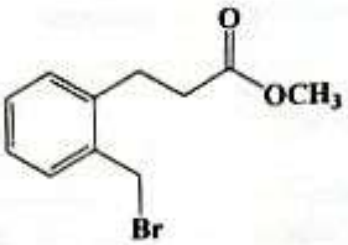
→ 5 → 

d) 

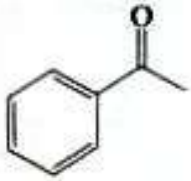
→ 6 → 

e) 

1) $SOCl_2$ → 2) DIBAL, 3) H^+ → 7

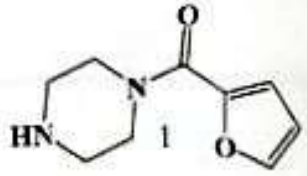
f) 

NaOH → 8

g) 
→ 9 → 

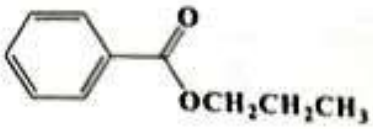
NH_2NH_2, NaOH → 10

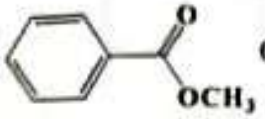
h) 

+ 

→ Base → 11

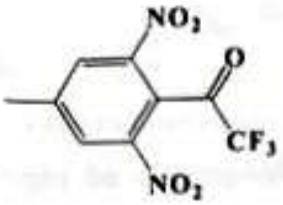
Q2. Circle the compound that undergoes easily reaction (according to the given phrases).

a) 

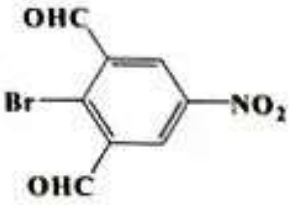


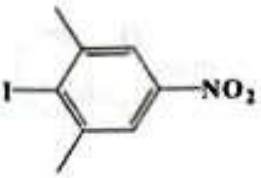
(Ethanolysis)

b) 

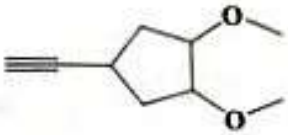


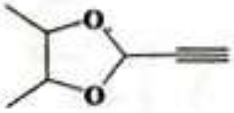
(Reduction using Wolf-Kishner)

c) 

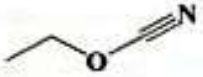


(Nucleophilic Aromatic Substitution)

d) 



(Oxidative cleavage using $KMnO_4$)

e) 

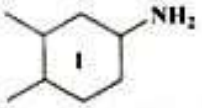
(Alkaline Hydrolysis)

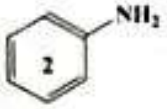
f) 

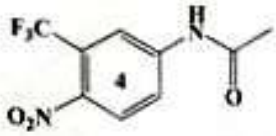
(protonation)

Q3.

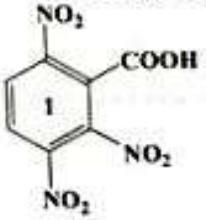
a- Arrange the following nitrogen compounds according to the increase in their basicity.

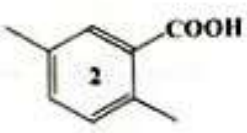


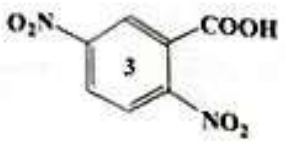


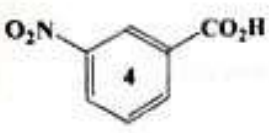


b- Arrange the following compounds according to the increase in their acidity.



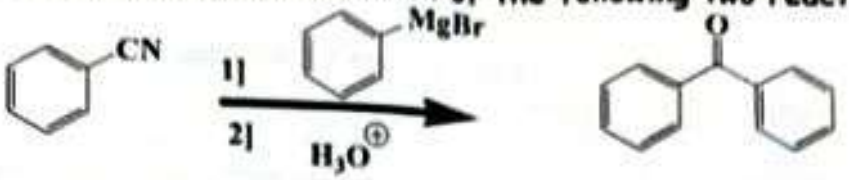




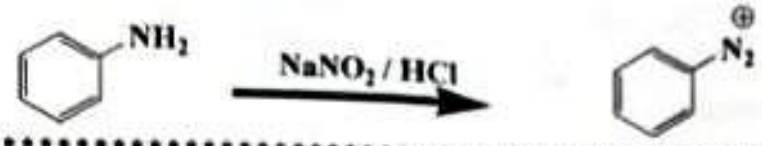


Q4. Write a clear mechanism for each of the following two reactions.

a]

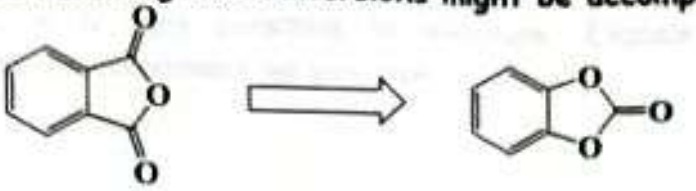


b]

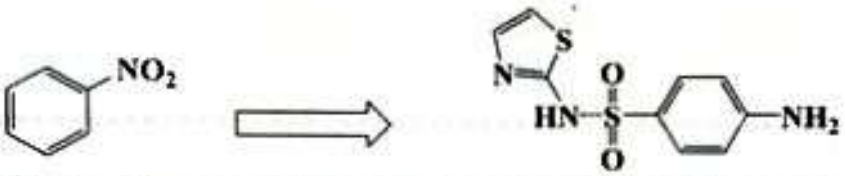


Q5. How the following two conversions might be accomplished?

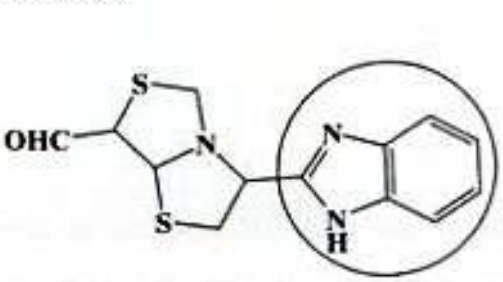
a]

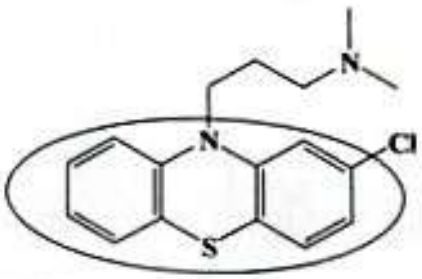


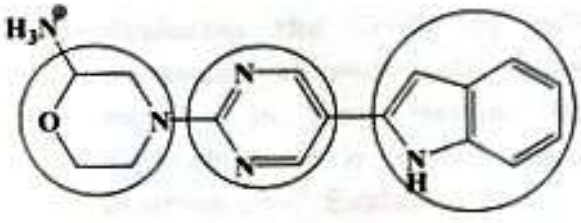
b]

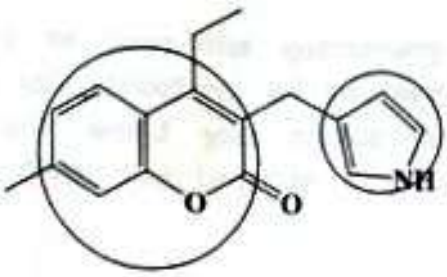


Q6. Identify each circled heterocyclic nucleus in the following structures.

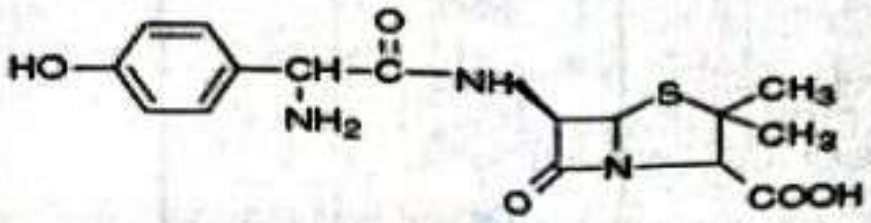






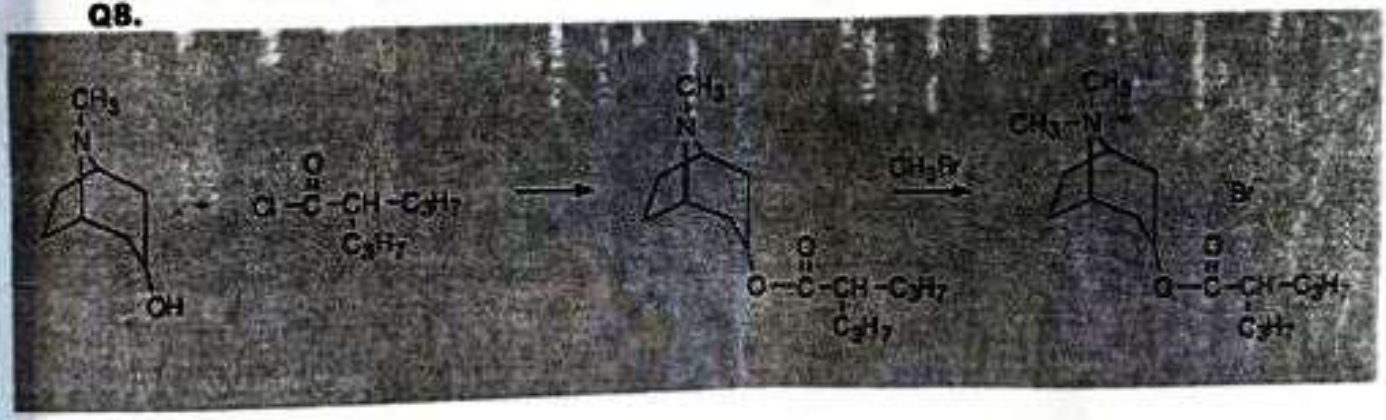


Q7. Regarding to the antibiotic (Amoxycillin)



Amoxycillin is very sensitive to moisture. Explain using chemical equations as convenient as you can

Q8.

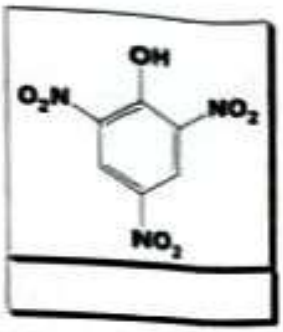
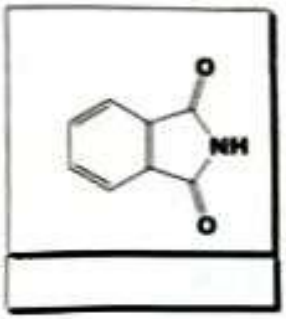
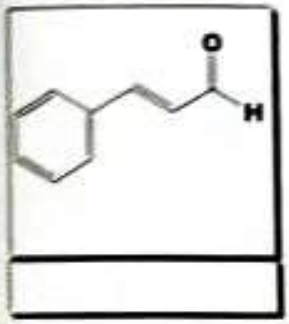
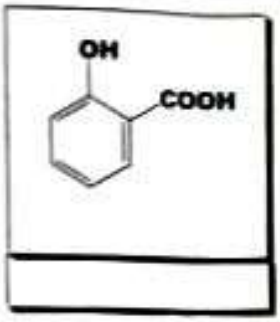


a- Identify the type of the above reaction.

b- Replacing the CH_3Br by HCl leads to form the quaternary ammonium chloride salt: draw this salt structure. If you are working in drug design: which salt would you advice to synthesize as a better salt form drug: the bromide or the chloride one? Explain.

Q5.

a- Provide the missing structures and common names

		
Catechol		
		
		Benzophenone

b- A strong Oxidation of O-Cresol using $KMnO_4$ followed by its reaction with thionyl chloride providing (A). The product A was treated with ammonia to provide white crystals (B) that were refluxed with bromine in sodium hydroxide solution providing a compound (C). C was later treated with Phosgen; providing compound (D) with molecular formula $C_7H_5NO_2$. Can you please provide a reasonable structure for the compound D.

Best Wishes

Dr. Kanan Mahmoud Al Wahaidi