



University of Technology
Department of Applied Sciences 2014/2015
Final Exam



Subject organic Chemistry Class 3rd year
Branch Applied chemistry Time 3 hours
Examiner Lec.Mohammed S. Ali Date 2015-6-8



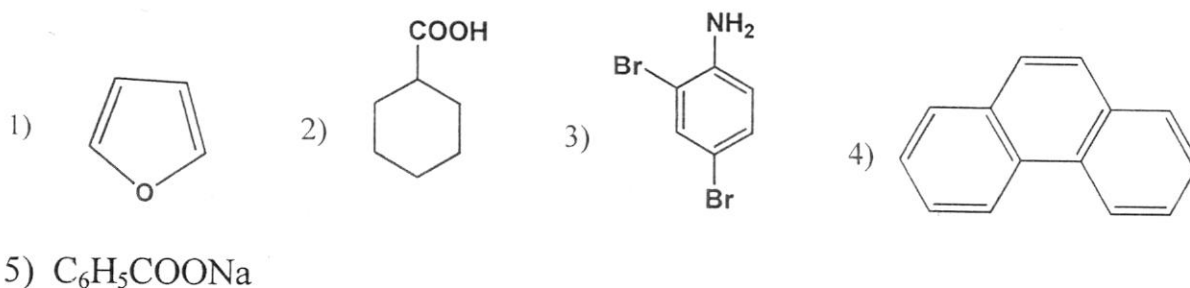
Q4\

(15 marks)

A) Draw the structures formula of the following compounds?

- 1) Acrylic acid 2) phenylacetaldehyde 3) Pthalimide 4) pyridine
4) p-nitroso-N,N-dimethylaniline

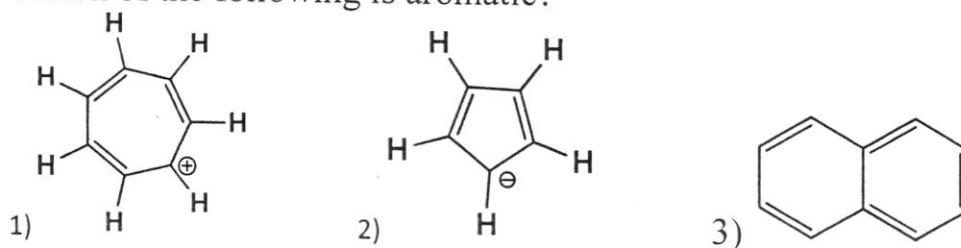
B) Name the following compounds ?



Q5\

(15 marks)

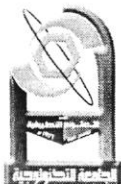
A) Which of the following is aromatic?



B) Complete the reaction and give the mechanism?



Good luck



University of Technology
Department of Applied Sciences 2014/2015
Final Exam

السؤال



Subject organic Chemistry
Branch Applied chemistry
Examiner Lec.Mohammed S. Ali

Class 3rd year
Time 3 hours
Date 2015-6-8

Note: answer four questions only.

Q1

(15 marks)

A) Define the following terms :

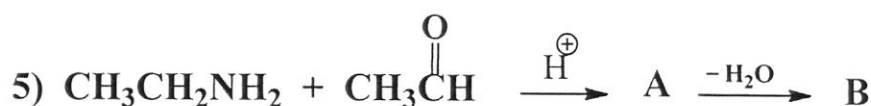
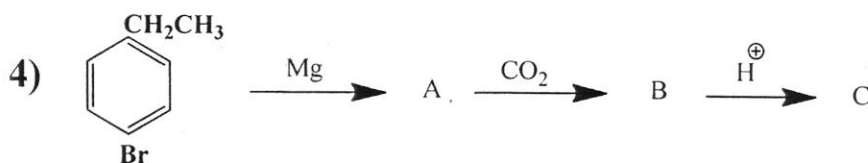
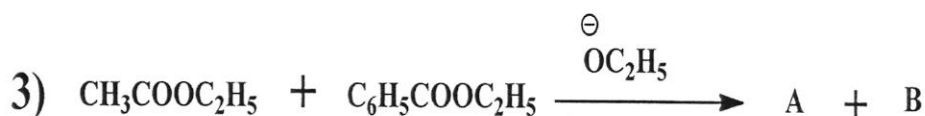
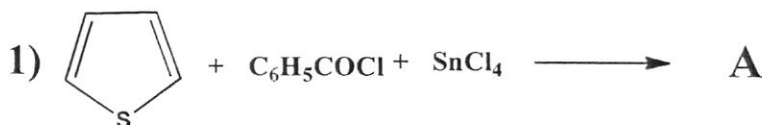
1) racemic modification. 2) specific rotation 3) enantiomers

B) Draw and specify as R or S the enantiomers of :

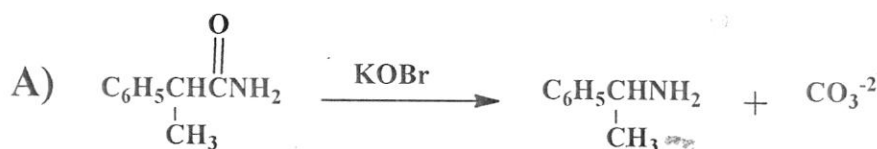
a) $\text{CH}_3\text{CBrClCH}=\text{CH}_2$ b) $\text{HOOCCHOHCH}_2\text{COOH}$ c) $\text{CH}_3\text{CH}(\text{NH}_2)\text{COOH}$

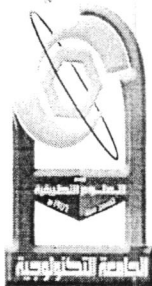
Q2 Complete the following reactions :

(15 marks).

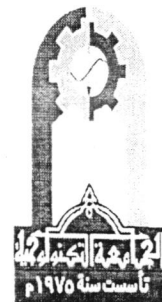


Q3 Write the mechanism of the following reactions : **(15 marks)**





University of Technology
Department of Applied Sciences
2014/2015
Final



Subject : Inorganic Chemistry
Branch : Applied Chemistry
Examiner : Rashed T. Rasheed

Class : 3rd year
Time : 3 hours
Date : 16-6-2015

Note: Answer 4 questions only

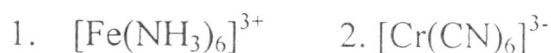
Q1/ A. According to IUPAC system, what is the name of the following complex compounds? (15 Marks)



B. Give symmetry elements of the following compounds? (10 Marks)



Q2/ Draw sigma, pi, 10Dq and electronic configuration of the following compounds? (25 Marks)



Q3/ Discuss the following: (25 Marks)

1. $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$ is essentially colorless while $[\text{Fe}(\text{CN})_6]^{3-}$ is highly colored. Explain?
2. Which ligands will have the larger 10Dq (Δ) NH_3 or H_2O ? Why?
3. Arrange the following ligands in order of increasing 10Dq (Δ) (CO , Cl^- , en).
4. $[\text{Co}(\text{NH}_3)_4(\text{CN})_2]^+$ Z-in distorted, while $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]^+$ Z-out distorted?

Q4/ A. Give one example for each of the following ligands? (10 Marks)

1. Mono dentate. 2. Tri dentate. 3. Hexa dentate.

B. Why the magnetic moment of both complexes $[\text{Cr}(\text{H}_2\text{O})_6]^{3+}$ and $[\text{Cr}(\text{NH}_3)_6]^{3+}$ equal to 3.46 BM, what is the hybrid and structure of these complexes? (15 Marks)

Q5/ According to VBT give hybrid, geometric shape and μ for the following compounds: (25 Marks)



GOOD LUCK