



Answer the following questions:

1- **A)** Define the following points? (6 marks)

- i) Isoelectric point.      ii) Acidic amino acids.      iii) Basic amino acid.

**B)** How you can synthesis Amino Acids by using two different methods? (6 marks)

**C)** Amino acids can go Oxidative Coupling and Ninhydrin Reaction; deduce both of these reactions? (6 marks)

2- **A)** Discuss Baeyer strain theory for the following compounds?

- i) Cyclohexane.      ii) Cyclopropane.      iii) Cyclobutane. (9 marks)

**B)** Synthesis of alicyclic compound starting from?

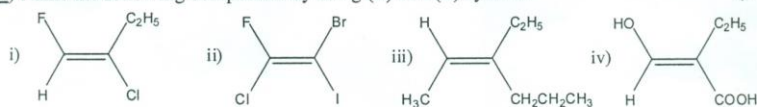
- i) Distilled barium adipate.      ii)  $\alpha,\omega$ -dihalogen derivatives with malonic ester. (9 marks)

3- **A)** Chose the type of polymerization for each compounds and explains the three polymerization stages for:

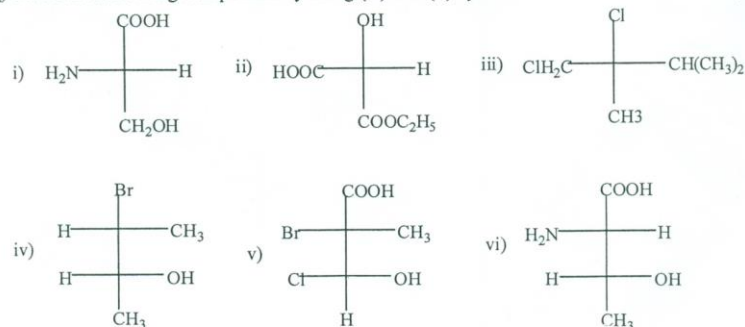
- a)  $\text{CH}_3\text{CH}=\text{CHNO}_2$       b)  $\text{CH}_2=\text{CH-OH}$       c)  $\text{PhCH}=\text{CH}_2$  (12 marks)

**B)** Define Condensation Polymerization and discuss it is advantage? (6 marks)

4- **A)** Name the following compounds by using (E) and (Z) system? (8 marks)



**B)** Name the following compounds by using (R) and (S) system? (10 marks)



5- A) Draw the Structure of the following compounds and a sign the number of asymmetrical carbon atom of compounds (i, ii, iii and iv)? (10 marks)

i) D-Ribose      ii) L-Erythrose      iii) L-Galactose      iv) D- Fructose

v) Maltose      vi) Sucrose      vii)  $\beta$ -Mannose

B) Discuss using equations why glucose and fructose gave the same ozazone test? (8 marks)

*With Our best Wishes*

Dr. Omar M. Elhady

and

Dr. Mahmoud Abd El-Aleem

Sohag University

Time: 3 hours

Jan., 2015



Faculty of Science

Chemistry Department

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Organic Chemistry Examination for 1<sup>st</sup> year students (Pharmacy Students)

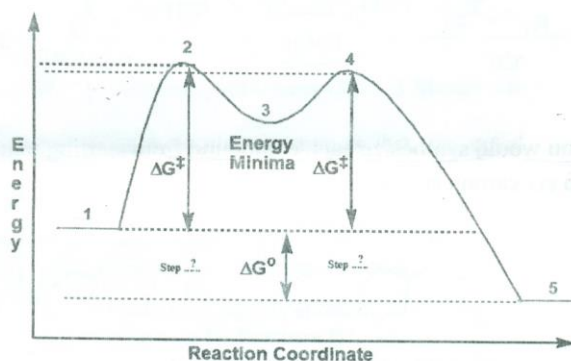
**Answer five questions only of the following:**

1- A) what does it means; give an example for your answer? (8 marks)

- (i) Types of reactions. (ii) Types of fission.  
(iii) Types of carbon atom. (iv) Types of Reagent.

B) Imagine you have addition reaction of HX to an Alkene, illustrate the reaction mechanism compatible with this diagram, define the steps and label the numbers?

(6 marks)



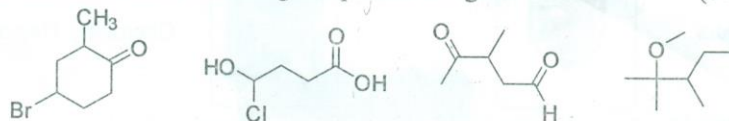
2- A) in the following table, for each compound shown, indicate for each alkyl bromide shown which reaction mechanisms are allowed (with a check mark) or forbidden (with an X) (8 marks)

	$S_N1$	$E1$	$S_N2$	$E2$
$CH_3Br$				

B- How you can synthesis of thiols and what about thiol oxidation? Give just one example for each

(6 marks)

3- A) write the name of the following compounds using IUPAC rule? (8 marks)



B) Discuss the following reaction by illustrate their mechanism? (6 marks)

(i) Wittig Reaction.

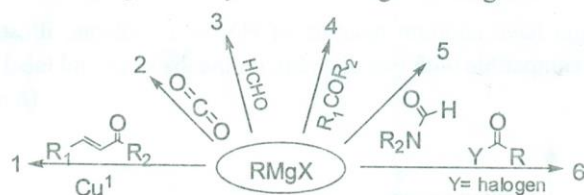
(ii) Pinacol Rearrangement.

4- A) discuss the synthesis of Epoxides from the following? (5 marks)

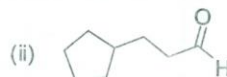
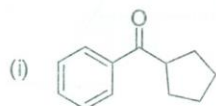
(i) Peroxyacid epoxidation.

(ii) Cyclization of Halohydrin

B- Complete the following reactivity tree for a Grignard Reagents. (9 marks)



5- A) Show how you would synthesize each compound from starting materials containing no more than six carbon atoms. (8 marks)



B) 1,3-pentadiene is more stable than predicted. Why?

6- Give one example only for the synthesis of the following compounds? (14 marks)

(i) Carboxylic Acids.

(ii) Ketones and Aldehydes.

(iii) Ethers.

(iv) Amides.

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With my best wishes

Dr. Omar Elhady

Sohag University

Time: 2 hours

4 Jan., 2016



Faculty of Science

Chemistry Department

Organic Chemistry Examination for 1<sup>st</sup> year students (Pharmacy Students)

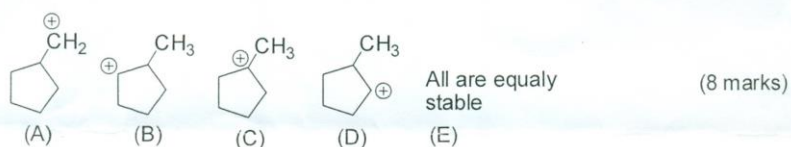
Answer the following Questions:

1- A) Stability of alkenes can be provided in terms of heats of hydrogenation So compare between 1,3-pentadiene and 1,4-pentadiene in its stabilities? (10 marks)

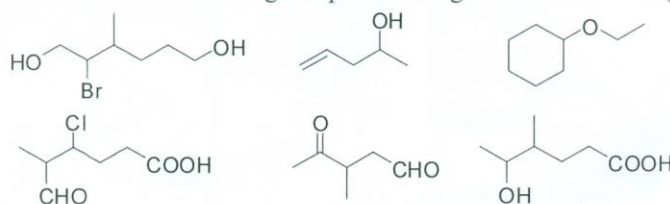
B) Discuss the Unimolecular Nucleophilic Substitution reaction from? (12 marks)

1. Kinetics of the reaction.
2. Mechanism of the reaction and its diagram.
3. Substrate suitable for the reaction.

C) Predict which of the following carbocations has the highest energy and why?



2- A) Write the name of the following compounds using IUPAC rule? (12 marks)



B) Give one example for synthesis of thiols and what about thiol oxidation?(6 marks)

C) Write by equation on the following? (12 marks)

1. Formation of alkoxide ion.
2. Cyclization of halohydrin.
3. Fisher esterification.

3- Give one example only for the synthesis of the following compounds? (30 marks)

- |                       |                             |
|-----------------------|-----------------------------|
| (i) Carboxylic Acids. | (ii) Ketones and Aldehydes. |
| (iii) Ethers.         | (iv) alcohols.              |
| (v) Alkyl Halides.    |                             |

With my best wishes Dr. Omar Elhady