

Fayoum University  
Chemistry Department

Class:- Second year Chem./physics'  
Time : 3hrs 2012 لائحة حديثة

Faculty of science  
Organic Examination

Answer the following questions :

Q1-a- Explain by equation how each of the following conversion

i- Glycerol to citric acid      ii-pyrrolidine to 1,3-butadiene

iii- Diethylmalonate to adipic acid .

b- Write the equations indicating the reaction of alanine with

1-fluoro-2, 4-dinitro benzene      2-  $\text{HNO}_2/\text{HCl}$

3- $\text{LiAlH}_4$       4- $\text{CH}_2\text{O}$       5- Ba

Q2-a- i- Identify the following and give one use of each

Iodine number , Saponification number

ii- Write the structure of mixed fat (olinopalmetine) and conversion it to soap

b- Write the equations of all steps in each of the following synthesis :

i- Maleic anhydride from malic acid

ii- Glutaric acid from diethylmalonate

iii- Crotonic acid from malonic acid

iv- Tartaric acid from fumaric acid

Q3-a-Illustrate by mechanistic equations each of the following :

i- Lactic acid (2 moles) with heating

ii- Isoprene + maleic anhydride

iii- Glyoxal with  $\text{HCN}$  then hydrolysis

iv- Succinaldehyde with phosphorus penta oxide

b- Show how the following conversions can be accomplished :

1- Potassium phthalimide to alanine

2- Hypuric acid to phenyl alanine

3- Stercker synthesis of glycine

Q4-a-Applying the C-terminal, N- terminal , show the sequence gly-alanyl-phenyl alanine.

b- Complete the following equations ?

انظر خلفه