

**NATIONAL OPEN UNVERSITY OF NIGERIA**

**PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA**

**FACULTY OF SCIENCES**

**DEPARTMENT OF PURE & APPLIED SCIENCES**

 **NOV. 2018 EXAMINATION MARKING GUIDE**

**COURSE CODE: CHM 305**

**COURSE TITLE: Organic Chemistry III SEMESTER EXAMINATION2018\_2**

**UNIT: 3**

**INSTRUCTION: Answer Question 1 and any 4 Questions**

**TIME: 2 ½ HOURS**

**QUESTION 1**

(a). Proove thatalcoholis less acidic than water.  **(8 marks)**

(b). Using appropriate reagents and catalyst, show that aromatic alkanone can be

prepared by Friedel-Craft acylation? **(5marks)**

(c). Discuss thechemistry of Oxidation and Acylation of glucose.**(9 marks)**

**QUESTION 2**

(a). Show how ethanol can be prepared by hydration of alkene. **(4 marks)**

(b). Classify carbohydrate base on molecular weight. **(8 marks)**

**QUESTION 3**

1. Whydoes substitution reactions of furan have less useful application?**(3 marks)**
2. List 10 chemical equations for reactions of furan that are of practical important**(5 marks)**

(c). Write two equations for electrophilic substitution reactions of thiophene **( 4 marks)**

**QUESTION 4**

(a). Show that ether can be prepared using Williamson synthesis **(6 marks)**

(b). Comfirm the process of production of alcohol in large and concentrated quantity

from Maize starch.  **(6 marks)**

 **QUESTION 5**

(a) List two industrial uses of Oxalic acid*.*  **(2 mark)**

(b) Give five structures of derivatives of pyridine that are of physiological importance

**( 5marks)**

(c). Write short note on Michael nucleophlic addition to α,β-Unsaturated carbonyl

compound. Take Benzalacetophenine and ethylmanoate as the Michael donor and

acceptor respectively **(5 marks)**

 **QUESTION 6**

1. Differentiate between symmetrical and unsymmetrical ethers. **(8 marks)**

 (b) Draw the structure of the following:  **(4 marks)**

* Oxetane
* Oxane
* Oxalane
* 1,4-Dioxane