

**NATIONAL OPEN UNIVERSITY OF NIGERIA**

**UNIVERSITY VILLAGE, PLOT 91 CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESS WAY, JABI - ABUJA.**

**FACULTY OF SCIENCES**

**DEPARTMENT OF PURE AND APPLIED SCIENCES**

**JULY 2018, EXAMINATIONS**

**COURSE CODE: CHM 315**

**COURSE TITLE: CARBOHYDRATE CHEMISTRY**

**COURSE UNIT: 2**

**TIME: 2 HOURS**

**INSTRUCTION: Question one is compulsory. Answer question one and**

**any other three questions.**

QUESTION ONE

1a i. Mention two importance of carbohydrates (2marks)

ii. Define the term ‘mutarotation’ (1 mark)

iii. Using well illustrated structures, show the different forms of glucose present at mutarotation equilibrium. (5marks)

1bi) Enumerate two characteristics by which monosaccharides are classified

(2marks).

1bii) Write briefly on the following

a. Sugar alcohols (5marks)

b. Amino sugars (5marks)

c. Uronic acids (5marks)

QUESTION TWO

2ai) What are monosaccharides? Enumerate at least four examples. (7 marks)

2b) Write short notes on the following:

i. Pyroxylin (4marks)

ii.Cellulose Acetate (4marks)

*(Structures will not be required)*

QUESTION THREE

3a) Explain the formation of glycosides (*marks will be given for well- illustrated chemical structures/equation*). (11marks)

3b.Using structures and equations only show the osazone formed by D-glucose and D-mannose. (4marks)

QUESTION FOUR

4ai) Describe homopolysaccharides? List at least two examples. (2marks)

4aii) List the components of these disaccharides noting the position and type of the glycosidic linkages present: Sucrose, Cellobiose, Gentiobiose, Maltose.

(4 marks)

4b) Discuss briefly the following:

1. Hemicellulose *(Structures will not be required)* (4 marks)
2. Trehalose (5 marks)

QUESTION FIVE

5) Write briefly on the following:

1. Pectin (5marks)
2. Chitin (5marks)
3. Agar (5marks)