



NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, Plot 91 Cadastral Zone, Nnamdi Azikiwe Express Way,
Jabi - Abuja.

FACULTY OF SCIENCE

JULY 2017 EXAMINATION

CHM 315: Carbohydrate Chemistry
COURSE UNIT: 2 Units

TIME: 2 Hours

INSTRUCTION: Answer Question ONE and any other THREE questions

- 1a i. Mention five importance of carbohydrates (5marks)
ii. Define the term 'mutarotation' (1 mark)
iii. Using well illustrated structures, show the different forms of glucose present at mutarotation equilibrium (5marks)
- b.i. What are monosaccharides? Enumerate at least four examples. (5marks)
ii. Enumerate three characteristics by which monosaccharides are classified (3 marks).
c. List the components of these disaccharides noting the position and type of the glycosidic linkages present: Sucrose, Cellobiose, Gentiobiose, Maltose, Lactose, Melibiose (6marks)
- 2a. What are homopolysaccharides? List at least four examples(2marks)
b. Write short notes on following: (*Structures will not be required*)
i. Pyroxylin (4marks)
ii. Cellulose Acetate (4marks)
iii. Hemicellulose (5 marks)
- 3a. Write a short note on 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)
4. Write briefly on the following: (*Marks will be given for well- drawn structures*)
a. Sugar alcohols (5marks)
b. Amino sugars(5marks)
c. Uronic acids(5marks)
5. Write briefly on the following:
a. Pectin (5marks)

- b. Chitin(5mark)
- c. Agar(5marks) (*Marks will be given for well draw structures*)

6. .Write short notes on the following: (*no structures will be required*)

- a. Xanthan gum (5marks)
- b. Cellulose (5marks)
- c. Trehalose (5marks)