

**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**

**FEBRUARY/MARCH2018 EXAMINATION**

**COURSE CODE: CHM 315**

**COURSE TITLE: CARBOHYDRATE CHEMISTRY**

**TIME: 2 HOURS**

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

**any other three questions.**

**QUESTIONONE**

1ai)What do you understand by the term carbohydrate? 3 marks

1aii) Using all criteria, outline the classes of carbohydrates.7 marks

1b Write the structure of D-(+)-glucose and D-(+) mannose.4 marks

1c) Write short note on sucrose.5 marks

1di)Describe briefly polysaccharides.2 marks

dii) Differentiate between homopolysaccharides and heteropolysaccharides.4 marks

**QUESTION TWO**

2a) Discuss brieflyglucosides.4 marks

2b) Distinguish between furanose and pyranose, giving one example in each case.4 marks

2c) With an equation show the reaction of aldose sugars in HOBr.7 marks

 QUESTION TWO = 15 Marks

**QUESTION THREE**

3a) With accompanying chemical equation of D-(+)-glucose and D-(+)-mannose, explain briefly osazone formatiom.15 marks

**QUESTION FOUR**

4ai) Write short note on monosaccharides.3 marks

4aii) Discuss briefly classification of monosaccharides.7 marks

4b)Give the structural formula of the following compounds: D-Erythrose and fructose.

5 mark

**QUESTION FIVE**

5a) In a tabular form, describe disaccharide under the following headings: Example of disaccharide ii) Description iii) Component monosaccharide. 71/2 marks

5b) Explain briefly the word starch.3 marks

5c) In the presence of a strong oxidizing agent, the two hydroxyl functional group in aldose are oxidized to give \_\_X\_\_\_\_\_ compound. Show with an equation the formation of compound X.41/2 marks