NATIONAL OPEN UNIVERSITY OF NIGERIA

DEPARTMENT OF PURE AND APPLIED SCIENCES

2021_2 EXAMINATIONS 45678

COURSE CODE: CHM 315 **CREDIT UNIT:** 2
COURSE TITLE: CARBOHYDRATE CHEMISTRY **TIME:** 2 HRS
INSTRUCTION: ***Answer question 1 and any other 3 questions***

Q1a. Draw the Haworth projection and Chair conformation structures of the following:

i) α-D-glucopyranose (4 marks)

ii) β-D-galactopyranose (4 marks)

iii) β-D-allopyranose (4 marks)

1b. Write short note on each of the following compounds in carbohydrate chemistry

i) Trehalose (5 marks)

ii) Uronic acid (4 marks)

iii) Gentiobiose (4 marks)

Q2. a) Recommend, with reasons, a sugar alcohol for sugar-free candies production (5 marks)

b) Cellulose – a suitable food for cow but not for human. Explain (5 marks)

c) Highlight five functions of alginic acid derivatives (5 marks)

Q3. a) With the aid of equation, show conversion of D-(-)-ribose to ribonic acid (5 marks)

b) Distinguish between aldonic acid and aldaric acid (5 marks)

c) Write the structure of xylan (5 marks)

Q4 Write short noteS on the underlisted phenomenon

a) Hemicellulose (5 marks)

b) Beta-Glucan (5 marks)

c) Cellulose acetate (5 marks)

Q5 a)Describe the production of hydrogenated glucose syrup from starch (4 marks)

b) Define cellulose gum and state its three uses (5 marks)

c) Itemize three properties affected by slight change in OH orientation (3 marks)

d) Briefly describe the formation of glycoside (3 marks)