CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

FOURTH YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN BIOCHEMISTRY

BIOC 403: CLINICAL BIOCHEMISTRY

STREAMS: B.Sc BIOC Y4S2 **TIME: 2 HOURS**

DAY/DATE: MONDAY 9/04/2018 **11.30 A.M - 1.30 P.M.**

INSTRUCTIONS:

- **Answer Question ONE and any other TWO Questions.**
- **Do not write anything on the question paper.**

QUESTION ONE [30 MARKS]

a. Describe the clinical applications of aspartate aminotransferase [AST] and indicate the normal reference values in males and females. [5 Marks]

b. Describe how α-amylase levels can be used in evaluation of pancreatic diseases. [5 Marks]

c. Differentiate between total bilirubin and direct bilirubin and hence provide the normal reference ranges. [5 Marks]

d. Describe blood urea nitrogen test and creatinine test as measures of kidney function. [7 Marks]

e. Describe the difference between urea clearance test and urine osmolality test and hence explain the impact of protein diet on the test results [8 Marks]

QUESTION TWO [20 MARKS]

a. Describe the genetics of the ABO blood group antigen system. [10 Marks]

b. Describe how erythroblastosis fetalis occurs and hence explain how it can be prevented [10Marks]

QUESTION THREE [20 MARKS]

a. Describe the etiology of Thalassemia. [10 Marks]

b. Describe the different treatment strategies available for Thalassemia. [10 Marks]

QUESTION FOUR [20 MARKS]

a. Describe the mechanism of sickling of red blood cells as observed in sickle cell anemia [10 Marks]

b. Describe the rheology of sickle cells. [10 Marks]

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