

CHUKA UNIVERSITY

FOURTH YEAR EXAMINATION BIOC 403: CLINICAL BIOCHEMISTRY

STREAM: Y4S2 BSc. BIOCHEMISTRY

TIME: 2 HOURS

INSTRUCTIONS

- i. Answer Question One and any other Two Questions**
- ii. Do not write 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)

