

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

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

BIOC 417: MEDICAL BIOCHEMISTRY II

STREAMS:

TIME: 2 HOURS

DAY/DATE: MONDAY 20/09/2021

11.30 A.M – 1.30 P.M

INSTRUCTIONS

- Answer question one and any other two questions
- 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 osmolarity 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 occur and hence explain how it can be prevented. [10 marks]

QUESTION THREE (20 MARKS)

- (a) Describe the etiology of Thelassemia [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) Explain the mechanism through which sickle cell trait confers partial protection against *Plasmodium falciparum*. [10 marks]
-