

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATION

**RESIT/SUPPLEMENTARY / SPECIAL EXAMINATIONS EXAMINATION FOR THE
AWARD OF DEGREE IN BACHELOR OF SCIENCE (BIOCHEMISTRY)**

BIOC 200: INTRODUCTORY BIOCHEMISTRY

STREAMS: BIOC

TIME: 2 HOURS

DAY/DATE: TUESDAY 4/5/2021

8.30 A.M - 10.30 A.M.

INSTRUCTIONS

- (i) Answer Question ONE and any TWO questions**
- (ii) Do not write on the question paper**

QUESTION ONE: (30 Marks)

- (a) Differentiate between apoenzyme and holoenzyme. (2 marks)
- (b) Outline four roles of enzyme cofactors. (4 marks)
- (c) Describe dark phase of photosynthesis, highlighting its role in plant metabolism. (9 marks)
- (d) Draw the structure of the following sugars:
 - (i) α -D glucose
 - (ii) Sucrose. (4 marks)
- (e) Describe causes and prevention of rancidity in fats. (5 marks)
- (f) Explain how amino acids are catabolized in the body. (6 marks)

QUESTION TWO: (20 Marks)

- (a) Conjugated proteins are sub-classified according to the prosthetic group they contain. Discuss major functions of conjugated proteins in the body. (10 marks)

(b) Describe mitochondrial chemiosmotic synthesis of ATP and explain how the process can be chemically inhibited. (10 marks)

QUESTION THREE: (20 Marks)

(a) Deoxyribonucleic acid (DNA) is the genetic code that determines all the characteristics of living things.

(b) (i) Draw structures of pyrimidinebases found in DNA. (4 marks)

(ii) Describe secondary structure of DNA as proposed by Watson and Crick 1953. (7 marks)

(b)Using chemical structures, describe the occurrence and chemistry of three structural disaccharides. (9 marks)

QUESTION FOUR: (20 Marks)

(a) Using structural and chemical formulae discuss the reactions of citric acid cycle. (10 marks)

(b) Describe amino acid classification based on properties of side chain (R group). (10 marks)

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