

BIOC 200

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

RESIT/SPECIAL EXAM

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

BIOC 200/204: INTRODUCTORY BIOCHEMISTRY

STREAM: BSC (BIOC)

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 18/11/2020

5.00 P.M. – 7.00 P.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. (4Marks)
- (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) 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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QUESTION THREE: (20 Marks)

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

(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) 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)
