

CHUKA



UNIVERSITY

SUPPLEMENTARY/ SPECIAL EXAMINATIONS

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

BIOC 200/BIOC 204: INTRODUCTORY BIOCHEMISTRY

STREAMS: BSC (BIOC)

TIME: 2 HOURS

DAY/DATE: TUESDAY 02/02/2021

2.30 PM – 4.30 PM

INSTRUCTIONS:

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

QUESTION ONE: (30 Marks)

- (a) Differentiate between starch and glycogen. (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 Fructose
 - (ii) Maltose. (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 glycolytic pathway. 10 marks)
- (b) Describe amino acid classification based on properties of side chain (R group). (10 marks)

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) Using an illustrative diagram, describe primary and secondary structure of DNA. (7 marks)

(b)Using chemical structures, describe the occurrence and chemistry of four structural Polysaccharides. (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 uncoupled. (10 marks)
