CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD OF

BACHELOR OF SCIENCE DEGREE IN NURSING

NURU 115: MEDICAL BIOCHEMISTRY 1

STREAMS:

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 31/3/2021 **8.30 AM – 10.30 AM**

INSTRUCTIONS:

- All questions are compulsory. Ensure that all your answers are properly numbered.
- Part 1: multiple Choice Questions (MCQ): Write the correct answer on the space provided in the answer booklet. Each MCQ is one mark.
- Part II: Short Answer Questions –Answer questions following each other on the answer booklet.
- Part III: Long Answer Questions: Answer each question on the answer booklet.

PART 1: MCQ (10 MARKS)

1. m-RNA is a complimentary copy of:
A). Transfer RNA
B). Ribosomal DNA
C). Ribosomal RNA
D). A single strand of DNA

2. Which of the following is not an essential fatty acid?
A). Arachidonic acid
B). Linoleic acid
C). Oleic acid
D). Lino lenic acid

3. A patient was diagnosed with a hypertriglyceridemia. This condition is named for the high blood levels of lipids composed of
A) 3 fatty acyl groups attached to a glycerol backbone.

B) a glycerol lipid containing a phosporylcholine group.
C) a sphingolipid containing three fatty acyl groups.
D) three glycerol moieties attached to a fatty acid.

4. Induce-fit" model of enzyme action proposed by Koshland implies that:
A). the active site is flexible and adjust to substrate
B). the active site requires removal of PO_4 group
C). the active site is complementary in shape to that of the substrate
D). Substrates change conformation prior to active site interaction

5. The repeating unit in hyaluronic acid is:
A). Glucuronic acid and N-acetyl galactosamine
B). Glucuronic acid and galactosamine
C). Glucuronic acid and glucosamine
D). Glucuronic acid and N-acetyl glucosamine

6. All of the following are the diseases associated with biomembrane changes except:
A). Cystic fibrosis
B). Emphysema
C). Mysthania gravis
D). Epilepsy

7. Which one of the following is not a carbohydrate-based sugar substitute for diabetic patients?
A). Olestra
B). Saccharin
C) Sucralose
D) Tagatose

8. In protein structure, the a-helix and β-pleated sheet are examples of:
A). Primary structure
B). Secondary structure
C). Tertiary structure
D). Quaternary structure

9. Inherited deficiency of enzyme ∝ - Galactosidase produces:
A). Histidine
B). Lysine
C).Glutamate
D). Arginine

10. All of the following are basic amino acids found in proteins except:
A). Histidine
B). Lysine
C). Glutamate
D). Arginine

PART II: SHORT ANSWER QUESTIONS (30 MARKS)

1. Highlight the biomedical importance of essential fatty acids. [5 Marks]
2. List major functions of amino acids in the body. [5 Marks]
3. What are the major functions of conjugated proteins in the body? [6 Marks]
4. Name sugar present in milk and draw its *Haworth projection* formula. [3 Marks]
5. Recent studies on junk DNA by scientists have shown that it has essential and useful functions. List and describe documented findings on relevance of junk DNA. [7 Marks]
6. Give a general illustration of peptide bond formation. [4 Marks]

PART III: LONG ANSWER QUESTIONS (30 MARKS)

1. Discuss clinical application of enzymes in medicine. [15 Marks]
2. Give the structure and medical relevance of monosaccharide derivatives found in the body. [15 Marks]

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