

PUHE 123

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

RESIT/SUPPLEMENTARY

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR
OF SCIENCE IN PUBLIC HEALTH

PUHE 123: MEDICAL BIOCHEMISTRY

STREAMS: BSC (PUHE) Y1S2

TIME: 2 HOURS

DAY/DATE: TUESDAY 10/08/2021

2.30 P.M. – 4. 30 P.M.

INSTRUCTIONS: Answer ALL Questions

SECTION A MCQs (10 MARKS)

1. LDL and HDL are commonly known as _____ and _____ respectively
 - a) Assimilatory cholesterol and oxidative cholesterol
 - b) Oxidative cholesterol and assimilatory cholesterol
 - c) Good cholesterol and Bad cholesterol
 - d) Bad cholesterol and good cholesterol
2. What makes water a liquid at room temperature?
 - a) Covalent bonding
 - b) Hydrogen bonds between water molecules
 - c) Noncovalent interactions
 - d) Van der Waals forces of attraction
3. Which one of the following compounds forms the 'backbone' of fats and oils?
 - a) Glycerol
 - b) Glucose
 - c) Palmitic Acid
 - d) An Amino Alcohol
4. Which among the following is a non-essential amino acid?
 - a) Threonine
 - b) Lysine
 - c) Serine
 - d) Histidine

5. Which of the following best describes the chemical formula of carbohydrate?
 - a) $C_nH_{2n}O$
 - b) $C_nH_{2n}O_n$
 - c) $(C_2HO)_2n$
 - d) $C_nH_nO_n$
6. Which of the following are not the components of RNA?
 - a) Thymine
 - b) Adenine
 - c) Guanine
 - d) Cytosine
7. Rancidity of lipids of lipid rich food stuffs is due to:
 - a) Hydrogenation of unsaturated fatty acids
 - b) Reduction of fatty acids
 - c) Oxidation of fatty acids
 - d) Deyhydrogenation of saturated fatty acids
8. Which of the following involves carrying genetic information from DNA for protein synthesis?
 - a) t-RNA
 - b) m-RNA
 - c) r-RNA
 - d) sn-RNA
9. Which of the following is an example of an epimer
 - a) Glucose & Galactose
 - b) Glucose & Ribose
 - c) Mannose & Glucose
 - d) Galactose & Mannose
10. Identify the purine base of nucleic acids in the following.
 - a) Cytosine
 - b) Thymine
 - c) Uracil
 - d) Adenine

SECTION BSHORT ANSWER QUESTIONS (30 MARKS)

- 1) State three factors that are responsible for the unusual properties of water. (3 marks)
- 2) Describe the Lock and Key model of enzyme action. (3 marks)
- 3) Differentiate between (6 marks)
 - a) Holoenzyme and a prosthetic group
 - b) Gluconeogenesis and Glycolysis
 - c) Nucleosides and Nucleotides

- 4) Addition or removal of heat causes phase transition in water. Outline what understand by the following terminologies (4 marks)
- a) Deposition
 - b) Vaporisation
 - c) Sublimation
 - d) Condensation
- 5) Draw the basic chemical structure of the following groups; (3 marks)
- a) Carbonyl
 - b) Ketone
 - c) Aldehyde
- 6) Explain how hydrogen ion concentration (pH) affects enzyme activity (2 marks)
- 7) Outline three properties of lipids (3 marks)
- 8) Name three classes of carbohydrates and give examples of sugars in each category (6 marks)

SECTION C LONG ANSWER QUESTIONS (30 MARKS)

- 1) Describe six properties of enzymes (12 marks)
- 2) Explain in detail the structural organization of proteins. (12 marks)
- 3) Describe protein classification (6 marks)
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