



MAASAI MARA UNIVERSITY
REGULAR UNIVERSITY EXAMINATIONS
2023/2024 ACADEMIC YEAR

SECOND YEAR SECOND SEMESTER
EXAMINATIONS
FOR
BACHELOR OF SCIENCE IN MICROBIOLOGY
AND BACHELOR OF EDUCATION (SCIENCE)

ZOO 2206: PRINCIPLES OF BIOCHEMISTRY

DATE:

TIME:

Instructions

A. Answer ANY TEN (10) questions.

B. Illustrate your answers with diagrams and give examples where appropriate.

Answer any TEN (10) QUESTIONS (70MKS)

1. Using an illustration, explain the property of water being both an acid and base. **(7 marks)**
2. Explain and illustrate the hydrogen-bonding potential in water molecules. **(7 marks)**
3. Explain the P^H phenomenon. **(7 marks)**
4. By illustrating the Henderson-Hasselbalch Equation (H-H Equation), state what it is used for. **(7 marks)**
5. Define buffers and explain their value in biological systems. **(7 marks)**
6. By stating the bonds that join amino acids in the structure of proteins, state and explain any three levels of protein structure. **(7 marks)**
7. By defining biomolecules, state and explain functions of any three major classes of biomolecules. **(7 marks)**
8. Explain the differences between monosaccharaides, oligosaccharides and Polysaccharides. **(7 marks)**
9. State three types of structural representations of carbohydrates and further explain their chemical properties. **(7 marks)**
10. Explain the role of lipids in biological systems. **(7 marks)**
11. Using examples explain conjugated or complex proteins or heteroproteins. **(7 marks)**
12. Draw and name a hypothetical structure of a nucleotide. **(7 marks)**
13. Write short notes on ligands. **(7 marks)**
14. Other than haemoglobin, explain other oxygen-binding proteins.

15. Explain the general characteristics of lipids.

(7 marks)

(7 marks)

END
