MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS

2022/2023 ACADEMIC YEAR

FOURTH YEAR SECOND SEMESTER

SCHOOL OF PURE APPLIED AND HEALTH SCIENCES

COURSE CODE: ZOO 4214

COURSE TITLE: BIOINFORMATICS

DATE: 19/4/2023 **TIME: 1100-1300 HRS**

INSTRUCTIONS TO CANDIDATES

1. Answer **ALL question** in **Section One** and **ANY TWO** selected from **questions in Section Two**
2. Illustrate your answer with suitable diagram and give examples where necessary

SECTION A: ANSWER ALL QUESTIONS (30MARKS)

1. Define data heterogeneity? **(3 marks)**
2. Name three nucleotide databases in bioinformatics **(3 marks)**
3. Give the meaning of two orthologs genes? **(3 marks)**
4. Compute a FASTA file, with 15 nucleotide bases. **(3 marks)**
5. State and explain at least 3 factors that contribute to sequence (dis)similarity. **(3 marks)**
6. Define the term primary database. **(3 marks)**
7. Explain the importance of Sequence alignment. **(3 marks)**
8. As an upcoming researcher, list key six areas bioinformatics can be beneficial to the society. **(3 marks)**
9. Describe the three components of bioinformatics. **(3 marks)**
10. What is a Homeo box? **(3 marks)**

SECTION B: ANSWER ANY 2 QUESTIONS (40 Marks)

11. Describe at least five file formats commonly used in Bioinformatics **(20 marks)**
12. Describe the processes of data acquisition, data storage, data classification and data analysis in Bioinformatics **(20 marks)**
13. Discuss the various molecular techniques important in Bioinformatics **(20 marks)**
14. Describe the central dogma, and explain its significance in bioinformatic studies **(20 marks)**

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