STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted from the academic year 2019 – 2020 & thereafter)

M.A / M. Sc. DEGREE EXAMINATION, NOVEMBER 2023
BIOINFORMATICS
THIRD SEMESTER

COURSE : ELECTIVE
PAPER : APPLICATIONS OF BIOINFORMATICS
SUBJECT CODE : 19BI/PE/AP23
TIME : 3 HOURS **MAX. MARKS:100**

SECTION - A

ANSWER ALL THE QUESTIONS IN A LINE OR TWO (20 x 1 = 20)

1. The International Nucleotide Sequence Databases Collaboration (INSDC) have been developed and maintained collaboratively between _____.
2. In GenBank file format, start of sequence section is with word _____ and end of sequence section is marked with _____.
3. SNP stands for _____.
4. The first public comprehensive, computerised, and publicly available database of protein sequences was created by _____.
5. Sequence retrieval system of DDBJ is _____.
6. Differentiate innate and adaptive immunity.
7. Comprehensive, authoritative and timely knowledgebase of human genes and genetic disorders compiled is _____.
8. The online tool that enable authors to enter a sequence, annotate it, and submit it to GenBank is _____.
9. Write the single letter code for glutamic acid and methonine.
10. Indels stands for ____.
11. Define epitope prediction.
12. Individual's genetic profile used to select the proper medication or therapy is called _____.
13. The Major Histocompatibility Complex (MHC) is also known as the _____ in humans.
14. Which of the following polypeptide is important for the expression of MHC I on the cell membrane?
    a) Interferons b) β2-microglobin c) Lymphokines d) Interleukins
15. Mention any two tools for epitope prediction.
16. Name <u>two</u> software to draw chemical structures.
17. Define drugs.
18. Name any <u>Two</u> 3D chemical structure file format.
19. Name any two phagocytic cells.
20. A digital archive of full-text, peer-reviewed scientific and biomedical journals is _____.

SECTION - B

ANSWER ANY FOUR QUESTIONS. (4x10=40)

21. Classify the biological data and add a note on their applications.
22. Elaborate on the sequence submission and sequence retrieval tools.

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23. Explain the expanse of data in NCBI literature and genetics databases.
24. Discuss the importance of Pharmacogenomics Knowledge Base (PharmGKB).
25. Give an overview of IMGT immunoinformatics resources.
26. Describe the cells of immune system.
27. Discuss the applications of cheminformatics tools in drug design.

SECTION - C

ANSWER ANY TWO QUESTIONS. (2x20=40)

28. Describe the genetic variations that are essential for the diversity of traits and characteristics within a population.
29. Discuss the key components of virtual screening and their applications.
30. Discuss the MHC polymorphism in detail.
31. Describe the features and options to search for chemical information in PubChem database with examples.

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