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

SUBJECT CODE: 19BI/PC/PR34

M. Sc. DEGREE EXAMINATION, NOVEMBER 2022
BIOINFORMATICS
THIRD SEMESTER

COURSE : CORE
PAPER PYTHON AND R PROGRAMMING
TIME : 3 HOURS **MAX. MARKS: 100**

SECTION – A

ANSWER ALL THE QUESTIONS: (20x1=20)

1. What are the features of learning BioPython in Bioinformatics.
2. Explain namespace in Python.
3. Differentiate between list and tuple in Python.
4. Explain membership operators with example in Python.
5. What are built-in types provided by python?
6. Differentiate between module and package in Python.
7. What are the rules for local and global variables in Python?
8. Write a Python code for array in numpy to create Python Matrix.
9. What is the use of decorators in Python?
10. What is the purpose of break statement in Python?
11. What are the different data types/objects in R?
12. How to install a package in R?
13. Differentiate between library() and require() functions in R.
14. What is the difference between lapply and sapply in R?
15. What are the different types of Graphs in R programming?
16. What are the names of some R package repositories?
17. What is a ggplot2 aesthetic in R?
18. Give example for while loop in 'R'.
19. What are the competitive benefits is using R for data analysis?
20. How many Bioconductor packages are there in R?

SECTION – B

ANSWER ANY FOUR OF THE FOLLOWING (4x10=40)

21. Explain the procedure and concepts for reading data in R.
22. Explain about vector and List in R programming.
23. Explain about the dictionaries and its methods in Python Programming.
24. Write about conditional statements and its types with an example in Python Programming.
25. Explain briefly on Biopython packages with examples.
26. Explain briefly on Bioconductor packages in R with examples.
27. Illustrate briefly on usage of Graphics in R programming with examples.

..2

SECTION – C

ANSWER ANY TWO OF THE FOLLOWING (2x20 =40)

28. Explain Normalization with its methods in Gene Expression Data Analysis using R programming.
29. Explain different ways to call a function in python using examples.
30. Explain in detail about various plots and its usage in data analysis using R.
31. Explain about List and Tuples with its methods in Python programming with examples.

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