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 2021
BIOINFORMATICS
THIRD SEMESTER

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

SECTION - A

Write codes to explain the working of the following functions   (10X2=20)

1. Repeat a vector 4 four times
2. Count
3. Tuple for alphabets from L to T
4. Aes() for no=20, 30, 40, 50 and books = stat, chem, math, soc
5. Data.frame() for x=1,2,3, and y= dog, cat, lion
6. Mutable
7. Geom with jitter option to have least transparency
8. Write a csv file named string.csv in R
9. Install biostring package
10. Back transcribe

SECTION –B

Explain The Following Modules/ Packages with Codes – Any six   (6X10=60)

11. Matplotlib
12. Mutable and Translate
13. A function to splice introns
14. Biomart and msa
15. Ggplot
16. string set and Views
17. Bioseq
18. Geo2R

SECTION –C

Answer Any One of the Following (1X20=20)

1. a. Explain the codes to create simple plots in R, use the color options with proper axis labels for the data. Plot different plots for each category with respect to their age. The following data was taken from a clinic.

No of people with gut disorder –	35, 20, 45, 3, 19
No of people with lung infections -	20, 30, 40, 50, 60
No. of people with cardiovascular problems –	30, 40, 23, 45, 67
Age group -	30, 40, 50 60, 70

   b. Create two sets of random normal distribution values with a sample size of 500 and create a jitter plot for the same

(OR)

2. Retrieve the sequence record "6273291" from Entrez, translate the same sequence into a protein and save it as a file.