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

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SUBJECT CODE: 19BY/PC/RM24

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M.Sc. DEGREE EXAMINATION, APRIL 2023
BIOTECHNOLOGY
SECOND SEMESTER

COURSE   : CORE
PAPER   : RESEARCH METHODOLOGY
TIME   : 3 HOURS   **MAX. MARKS: 100**

SECTION – A

ANSWER ALL THE QUESTIONS   **(10 x 2 = 20)**

1. In order to pursue the research, which of the following is priorly required?
   - a. Developing a research design   b. Formulating a research question
   - c. Deciding about the data analysis procedure   d. Framing a research hypothesis

2. Define primary data.
3. What is cross referencing?
4. Define Manuscript.
5. What is median?
6. What is Coefficient of Variation?
7. What is Regression Analysis?
8. Write about Poisson distribution.
9. What is Null Hypothesis?
10. Expand SPSS.

SECTION – B

ANSWER ALL THE QUESTIONS   **(5 x 8 = 40)**

11. a) Explain the concept of research formulation
                     (or)
    b) Write elaborately about data collection and its types.

12. a) Write the detailed steps in a manuscript writing.
                     (or)
    b) Write brief notes on plagiarism and its adverse effects.

13. a) List down the applications of Biostatistics.
                     (or)
    b) Calculate the mean, variance and the Standard Deviation for the following distribution

Class	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Frequency	3	7	12	15	8	3	2

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14. a) Calculate the Karl Pearson's Correlation Coefficient from the following data:

X	9	8	7	6	5	4	3	2	1
Y	15	16	14	13	11	12	10	8	9

(or)

   b) State and prove the addition theorem on probability.

15. a) Elaborate on hypothesis testing

(or)

   b) The yield of four strains of wheat planted in five randomized blocks in kgs per plot is given below:

		Blocks				
		1	2	3	4	5
Strains	A	32	34	34	35	36
	B	33	33	36	37	34
	C	30	35	35	32	35
	D	29	22	30	28	28

Perform ANOVA test for differences between blocks and differences between strains.

SECTION – C

ANSWER ANY TWO QUESTIONS   **(2 x 20 = 40)**

16. Elaborate the different types of research.

17. Write in detail about the essentials of a scientific report.

18. A certain stimulus administered to each of 12 patients resulted in the following change in blood pressure (BP): 5, 2, 8, -1, 3, 0, -2, 1, 5, 0, 4, 6. Can it be concluded that the stimulus will in general be accompanied by an increase in blood pressure using t-test?

19. Explain SPSS Packages for data analysis with applications.

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