

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2015– 2016 & thereafter)

SUBJECT CODE: 15BY/PE/RB14

M. Sc. DEGREE EXAMINATION - NOVEMBER 2016
BIOTECHNOLOGY
FIRST SEMESTER

COURSE : ELECTIVE

PAPER : RESEARCH METHODOLOGY AND BIOSTATISTICS

TIME : 3 HOURS

MAX. MARKS: 100

SECTION – A

ANSWER ALL QUESTIONS:

(20 x 1 = 20)

1. Bibliography
2. Abstract
3. Significance of research
4. Give the components of research report
5. Poster presentation
6. Abbreviate the following Project funding agencies: DBT, DST, CSIR, DAE, SERC
7. Cross reference
8. Poisson distribution
9. Biohazard
10. Cartagena Protocol
11. Standard error
12. Cluster Sampling
13. Ethical Committee
14. Tabulation
15. The following data is on the number of students in a city college having different blood groups. Represent the data in Pie diagram and Bar diagram.

Blood group	Number of students
A	744
B	971
O	888
AB	207

16. A data set of [1, 5, 6, 8, 10, 40, 65, 88] has more variability. Its standard deviation is 30.78 and its average is 27.875. find its coefficient of variation (CV)
17. A company has two sections with 40 and 65 employees respectively. Their average weekly wages are \$450 and \$350. The standard deviation are 7 and 9. (i) Which section has a larger wage bill?. (ii) Which section has larger variability in wages?
18. Z- test
19. How many triplet codes are possible by the four nitrogenous bases in a DNA molecule?
20. Plagiarism

SECTION – B

ANSWER ANY FOUR QUESTIONS:

(4 x 10 = 40)

21. Briefly describe the different steps involved in a research process.
22. Enumerate the different methods of collecting data giving one example each
23. As a teacher, you are interested in how well your reading program works. You randomly assigned your students to two groups. Half receive Phonics training, and half receive Whole Word training. Which is the better approach?

Phonics	Whole Word
7	16
4	8
7	16
2	9
5	8
9	16
7	8
3	8

24. The frequency table of the monthly salaries of 20 people is shown below.

Salary(Rs)	Frequency
3500	5
4000	8
4200	5
4300	2

- a) Calculate the mean of the salaries of the 20 people.
 b) Calculate the standard deviation of the salaries of the 20 people.
25. What is analysis of variance? Give an example to illustrate the same.

26. Define Biosafety and give an account on Biosafety levels

27. Calculate an independent t-test for the following data:

X ₁	X ₂
6	12
4	4
2	7
3	10
9	5
6	8
5	3

What is the critical value for “t”, is the “t” significant?

SECTION – C

ANSWER ANY TWO QUESTIONS:

(2 X 20 = 40)

28. a. Explain the application of biostatistics in biology with reference to collection, classification, tabulation and diagrammatic representation.
- b. From the following table test whether the colour of the son’s eye is associated with that of the father

Eye colour of father	Eye colour of son		
	Not Light	Light	Total
Not Light	203	175	378
Light	178	444	622
Total	381	619	1000

Given χ^2 at 5% level of significance $df = 1 = 3.84$

29. Describe the objective and various properties included in IPR

30. a. Write a detailed account on project proposal for receiving funds from the agencies.
- b. Write short notes on SPSS.

31. The following table shows the grouped data, in classes, for the heights of 50 people.

Height(in cm) – classes	Frequency
120<-130	2
130<-140	5
140<-150	25
150<-160	10
160<-170	8

- a) Calculate the mean, median, mode
- b) Calculate the standard deviation, variance, co-efficient of variation, standard error of mean.
