

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2015 – 16 and thereafter)

SUBJECT CODE : 15MT/PE/SR34

M.A. DEGREE EXAMINATION, NOVEMBER 2018
THIRD SEMESTER

COURSE : ELECTIVE
PAPER : STATISTICS FOR RESEARCH
TIME : 3 HOURS

MAX. MARKS : 100

SECTION – A

ANSWER ALL THE QUESTIONS:

(5 × 2 = 10)

1. Distinguish between parameter and statistic.
2. Determine the modal value of the distribution graphically.

X	0-100	100-200	200-300	300-400	400-500	500-600
F	12	18	27	20	17	6

3. Find the standard deviation of 16, 13, 17, 22.
4. What is meant by Interval estimation?
5. Define Type I and Type II errors.

SECTION – B

ANSWER ANY FIVE QUESTIONS:

(5 × 6 = 30)

6. Explain (i) standard error and (ii) sampling error.
7. Calculate the Geometric mean from the following data.

X	12	13	14	15	16	17
F	5	4	4	3	2	1

8. Calculate the mean deviation about the mean and its coefficient from the following data.

X	5	15	25	35	45	55	65
F	8	12	10	8	3	2	7

9. A random sample of size 100 has mean 15, the population variance being 25. Find the interval estimate of the population mean with a confidence level of (i) 99% and (ii) 95%.
10. A random sample of size 16 has 53 as mean. The sum of squares of deviations from mean is 150. Can this sample be regarded as taken from the population having 56 as mean?
11. Explain the various methods of collecting data.
12. From the following data draw Ogive and using this find the median.

X	0-20	20-40	40-60	60-80	80-100
F	41	51	64	38	7

SECTION – C

ANSWER ANY THREE QUESTIONS:

(3 × 20 = 60)

13. Explain the various methods of sampling.

14. (a) Find mean, median, mode from the following data.

X	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60
F	14	28	33	30	20	15	13	7

(b) Find the harmonic mean for the following data.

X	2	4	8	16
F	2	3	3	2

15. (a) Calculate the Quartile deviation and its coefficient from the following data

X	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
F	20	45	85	160	70	55	35	30

(b) The scores made by a candidate in a certain test are normally distributed with mean 500 and standard deviation 100. What percentage of candidate receives the scores between 400 and 600?

16. (a) Out of 300 households in a town 123 have TV sets. Find 95% confidence limits to the true value of the proportion of the households with TV sets in the whole town.

(b) A sample of size 9 from a normal population gave $\bar{x} = 15.8$ and $s_x^2 = 10.3$. Find a 99% interval for population mean.

(c) A manufacturing concern wants to estimate the average amount of purchase of its product in a month by the customers whose standard error is Rs.10. Find the sample size if the maximum error is not to exceed Rs.3 with a probability of 0.99.

17. (a) An I.Q. Test was administered to 5 persons before and after they are trained. The results are given below.

Candidates	I	II	III	IV	V
I.Q. Before training	110	120	123	132	125
I.Q. After training	120	118	125	136	121

Test whether there is any change in I.Q. after the training programme.

(b) In a survey of 200 boys of which 75 were intelligent, 40 had educated fathers. While 85 of the unintelligent boys had uneducated fathers. Do these figures support the hypothesis that educated fathers have intelligent boys?



