

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

SUBJECT CODE: 19BA/AC/BS35

**B.B.A. DEGREE EXAMINATION NOVEMBER 2022**  
**BUSINESS ADMINISTRATION**  
**THIRD SEMESTER**

**COURSE : ALLIED – CORE**  
**PAPER : BUSINESS STATISTICS**  
**TIME : 3 HOURS**

**MAX. MARKS: 100**

**SECTION – A**

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

1. Interpret the following values  $r=0$  and  $r=-1$
2. What is the use of scatter diagram?
3. State the basic types of data.
4. Determine mode for the following data:  
Size of Shoes            5        6        7        8        9        10        11  
No. of Persons            10      20      25      40      22      15      6
5. State the general form of the linear multiple regression function for  $k$  independent variables
6. What is a Type II error?
7. The probabilities of 3 students A,B,C solving a problem in statistics are  $\frac{1}{2}$ ,  $\frac{1}{3}$  and  $\frac{1}{4}$ , A problem is given to all 3 students What is the probability that no one will solve the problem?
8. Students of a class were given an aptitude test. Their marks were found to be normally distributed with mean 60 and standard deviation 5, What percent of students scored more than 60 marks?
9. Calculate the standard deviation from the following observations:  
240    260    290    245    255    288
10. To test the effectiveness of Statistical training. Frame null and alternate hypothesis

**SECTION – B**

**ANSWER ANY FIVE QUESTIONS: (5 x 8 = 40)**

11. Find the arithmetic mean of the following frequency distribution

Class limits	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89
Frequency	5	9	14	20	25	15	8	4

12. Of the 1000 workers in a factory exposed to an epidemic 700 in all were attacked, 400 had been inoculated and of these, 200 were attacked. On the basis of this information can it be said that inoculation and attack are independent?  
(Tabulated  $\chi^2 = 3.84$ )
13. A manufacturing firm produces steel pipes in 3 plants with daily production volumes of 500, 1000, and 2000 units respectively. According to past experience it is known that the fractions of defective output produced by the three plants are respectively at random 0.005, 0.008 and 0.010. If a pipe is selected from a day's total production and found to be defective. Find out from which plant for this defective pipe, the probability is highest.
14. State the assumptions of Linear Regression
15. What is correlation? What are the methods of determining correlation?
16. A random sample of 10 boys has the following IQs 70, 120, 110, 101, 88, 83, 95, 98, 107, 100. Do these data support the assumption of a population mean IQ of 100? ( tabulated t for 9 df for 2 tailed test = 2.262)

17. Draw a histogram to represent the following data

Weekly wages	10-15	15-20	20-25	25-30	30-40	40-50	60-80
No. of workers	7	19	27	15	12	12	8

### SECTION – C

ANSWER ANY TWO QUESTIONS:

(2 x 20 = 40)

18. The following table gives the yields of 15 samples of plot under three varieties of seed. Test using analysis of variance whether there is a significant difference in the average yield of seeds. Tabulate value  $F(2,12)$  at 5% level = 3.89

A	20	21	23		16	20
B	18	20	17		15	25
C	25	28	22		28	32

19. The life time of a certain type of battery has a mean life of 400 hours and a standard deviation of 50 hours. Assuming normality of the distribution of life time, find:
- the percentage of batteries which have a life time of more than 350 hours
  - the proportion of batteries which have life time between 300 to 500 hours
  - the life time value above which 25% of the batteries will have their lifetime

20. Find the Mean, Median and Mode for the following data and verify the empirical relation

class	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
frequency	3	7	13	17	12	10	8	8	6	6

21. Find the equation of regression lines for the following data

X	25	28	35	32	36	36	29	38	34	32
Y	43	46	49	41	36	32	31	30	33	39

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