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

B.VOC. DEGREE EXAMINATION – APRIL 2024
BANKING, FINANCIAL SERVICES AND INSURANCE
FOURTH SEMESTER

COURSE   **: MAJOR – ELECTIVE**
PAPER   **: BUSINESS STATISTICS**
SUBJECT CODE **: 19VB/VE/BS45**
TIME   **: 3 HOURS**   **MAX. MARKS: 100**

SECTION – A

Answer ALL questions: **(10 x 2 = 20)**

1. What are the functions of statistics?
2. Enumerate any two differences between Correlation and Regression.
3. List down four components of time series.
4. Write a short note on hypothesis testing procedure.
5. List any four uses of chi – square test.

6. Consider the following distribution:

X	0-10	10-20	20-30	30-40	40-50
f	12	18	20	25	23

   Compute mean.

7. You are given the trend equation $Y = 110 + 2X$
   Shift the origin to 2020 (Origin 2016, Time unit = 1 year)

8. Calculate 3 monthly moving averages from the following data:

Jan	Feb	Mar	Apr	Mar	June
57	65	63	72	69	78
July	Aug	Sep	Oct	Nov	Dec
82	81	90	92	95	97

9. Calculate standard deviation from the following information:
   The mean height obtained from a random sample of size 100 is 64 inches. The standard deviation of the distribution of height of the population is known to be 3 inches.

10. Find the standard deviation for the data given below:

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of students	5	8	10	12	6	4	2

SECTION – B

Answer any FIVE questions: (5 x 4 = 20)

11. Explain in detail the various methods of studying variation.
12. Find the standard deviation from the following data:

Marks	No. of Students	Marks	No. of Students
Upto 10	12	Upto 50	157
Upto 20	30	Upto 60	202
Upto 30	65	Upto 70	222
Upto 40	107	Upto 80	230

13. Calculate Coefficient of correlation between X and Y from the following data. Assume 69 and 112 as mean value for X and Y respectively.

X	78	89	99	60	59	79	68	61
Y	125	137	156	112	107	136	123	108

14. The following table shows the ages (X) and blood pressure (Y) of 8 persons.

X	52	63	45	36	72	65	47	25
Y	62	53	51	25	79	43	60	33

Obtain the regression equation of Y on X.

15. Fit a straight line trend for the following series.

Year	2001	2002	2003	2004	2005	2006	2007
Production of Steel (m.tonnes)	60	72	75	65	80	85	95

16. How to perform the chi-square goodness of fit test?
17. A random sample of 100 boys has the following IQ's: 70, 120, 110, 101, 88, 83, 95, 98, 107, 100. Do these data support the assumption of a population mean IQ of 100? (Table value of t at 5% level of significance = 2.262)

SECTION – C

Answer any TWO questions: (2 x 15 = 30)

18. Obtain the lines of regression from the following data:

X	4	5	6	8	11
Y	12	10	8	7	5

19. Calculate trend values by the method of least squares from the data given below:

Year	2002	2003	2004	2005	2006	2007	2008
Value	75	67	68	65	50	54	41

20. a) Test on two groups of boys and girls gave the following results:

Girls $\bar{x}$ = 78, S.D = 10, N = 50

Boys $\bar{x}$ = 73, S.D = 15, N = 100

Is there a significant difference in the mean scores of Boys and Girls.

b) Two different types of drugs A and B were tried on certain patients for increasing weight. 5 persons were given drug A and 7 persons were given drug B. The increase in weight in pound is given below:

Drug A	8	12	13	9	3		
Drug B	10	8	12	15	6	8	11

Do the two drugs differ significantly with regard to their effect in increasing weight?

21. The results of a certain survey shows that out of 50 ordinary shops of small size, 35 are managed by men of which 17 are in cities, 12 shops in villages are run by women. Can it be inferred that shops run by women are relatively more in villages than in cities. Use Chi – square test.

SECTION-D

I. Practical   (30 Marks)

1. Calculate Median and mode of the data given below. Using them find arithmetic mean:

Marks	10	20	30	40	50	60
No. of students	8	23	45	65	75	80

2. Two brands of tyres are tested with the following results:

Life (in '000 miles)	No. of tyres brand	
	X	Y
20 – 25	1	0
25 – 30	22	24
30 - 35	64	76
35 – 40	10	0
40 - 45	3	0

    a. Which brand of tyres have greater average life?

    b. Compare the variability & state which brand of tyres would you use on your fleet of trucks?

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