

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

**COURSE CODE: 19VB/VE/BS45**

**B.VOC DEGREE EXAMINATION – APRIL 2022**  
**BANKING, FINANCIAL SERVICES AND INSURANCE**  
**FOURTH SEMESTER**

**COURSE : MAJOR – ELECTIVE**  
**PAPER : BUSINESS STATISTICS**  
**TIME : 3 HOURS**

**MAX. MARKS: 100**

**SECTION – A**

**Answer ALL questions:**

**(10x2=20)**

1. List out the components of time series.
2. Mention the properties of a good estimator.
3. Bring out any two differences between correlation and regression.
4. State the significance of measuring variation.
5. What are the requisites of a good average?
6. Calculate the arithmetic mean of income of 10 employees in an office

14,780	15,760	26,690	27,750	24,840
24,920	16,100	17,810	27,050	26,950

7. Calculate range and its coefficient from the following data

<b>Marks</b>	<b>Number of students</b>
10-20	8
20-30	10
30-40	12
40-50	8
50-60	4

8. Fit a trend line to the following data by the method of semi averages

<b>Year</b>	<b>Sales</b>
2015	100
2016	102
2017	105
2018	110
2019	112
2020	118
2021	120

9. A coin was tossed 400 times and the head turned up 216 times. Test the hypothesis that the coin is unbiased.

10. 500 apples are taken at random from a large basket and 50 are found to be bad. Estimate the proportion of bad apples in the basket and assign limits within which the percentage most probably lies.

**SECTION – B**

**Answer any FIVE questions:**

**(5 x 4=20)**

11. Find the value of mode from the data given below

Weight (kg)	Number of students
93-97	2
98-102	5
103-107	12
108-112	17
113-117	14
118-122	6
123-127	3
128-132	1

12. Blood serum cholesterol levels of 10 persons are as under

240	260	290	245	255	288	272	263	277	251
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Calculate standard deviation with the help of the assumed mean.

13. In an experiment on immunization of cattle from tuberculosis, the results were

	Affected	Not Affected
Inoculated	12	26
Not Inoculated	16	6

Calculate chi-square test and discuss the effect of vaccine in controlling susceptibility to tuberculosis (5% value of chi square for one degree of freedom is 3.84).

14. Calculate the four yearly moving averages from the following data relating to the production of tea in India

Year	Production
2011	464
2012	515
2013	518
2014	467
2015	502
2016	540
2017	557
2018	571
2019	586
2020	612

15. A wholesaler in oranges claims that only 4% of the oranges supplied by him are defective. A random sample of 600 oranges contained 36 defective oranges. Test the claim of the wholesaler.
16. What are the uses of regression analysis?
17. List the procedure of testing hypothesis.

### SECTION – C

Answer any TWO questions:

(2 x 15 = 30)

18. Compute mean, median and mode from the following distribution

<b>X</b>	0-10	10-20	20-30	30-40	40-50
<b>f</b>	12	18	20	25	23

19. Fit a straight line trend for the following data by the Least Square method. Also find production for the year 2024.

<b>Year</b>	2015	2016	2017	2018	2019
<b>Production of steel (in tonnes)</b>	12	20	28	32	50

20. Calculate seasonal indices by the ratio to moving average method from the following data

<b>Year</b>	<b>1<sup>st</sup> Quarter</b>	<b>2<sup>nd</sup> Quarter</b>	<b>3<sup>rd</sup> Quarter</b>	<b>4<sup>th</sup> Quarter</b>
<b>2018</b>	68	62	61	63
<b>2019</b>	65	58	66	61
<b>2020</b>	68	63	63	67

21. The heights of six randomly chosen soldiers are in inches: 76, 70, 68, 69, 69 and 68. Those of 6 randomly chosen sailors are 68, 64, 65, 69, 72 and 64. Discuss in the light of these data the suggestion that soldiers are on the average taller than soldiers. Use t-test.

### SECTION-D

APPLICATION BASED QUESTION:

(30 Marks)

22. A sample of eight employees is taken from the production department of a light engineering company. The given data relates to the number of weeks of experience in the wiring of components and the number of components which were rejected as unsatisfactory last week.

<b>Employees</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>
<b>Experience (in weeks)</b>	4	5	7	9	10	11	12	14
<b>Number of rejects</b>	21	22	15	18	14	14	11	13

**Questions:**

- (i) Calculate the coefficient of correlation and interpret the value. (10 Marks)
- (ii) Find out the least squares regression equation of rejects on experience. (10 Marks)
- (iii) Predict the number of rejects you would expect from an employee with two weeks of experience. (10 Marks)

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