PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF LAW
END TERM EXAMINATION - JAN 2023

Semester : Semester III - 2021
Course Code : SOC2003
Course Name : Sem III - SOC2003 - Business Statistics
Program : BBA LLB Honors

Date : 12-JAN-2023
Time : 1.00PM - 4.00PM
Max Marks : 100
Weightage : 50%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.

PART A

ANSWER ALL THE FOLLOWING QUESTIONS   10 X 2 = 20M

1. Identify whether the given statement is true or false:
    While changing the scale, we have to multiply or divide by any specific number from each observation.
    (CO3,CO4,CO2,CO1) [Knowledge]

2. When there are 3 observations in a series which are repeating equally, then this type of mode is known as _____
    (CO1,CO2,CO3,CO4) [Knowledge]

3. Consider the simple linear regression equation:
    $Yt=\beta 0+\beta 1Xt$
    What is Xt ?
    (CO2,CO3,CO4,CO1) [Knowledge]

4. What are the other names of dependent variables?
    (CO1,CO4,CO3,CO2) [Knowledge]

5. Consider the simple linear regression equation:
    $Yt=\beta 0+\beta 1Xt$
    $\beta 0$ and $\beta 1$ denote _____and _____
    (CO4,CO1,CO3,CO2) [Knowledge]

6. Panel data is also known as_____.
    (CO3,CO2,CO1,CO4) [Knowledge]

7. What is the range of correlation coefficient?
    (CO4,CO1,CO2,CO3) [Knowledge]

8. If correlation coefficient is equals to (-1), it implies that

    (CO3,CO2,CO1,CO4) [Knowledge]

9. Identify whether the given statement is true or false:
    Sum of deviation from median is always 0

    (CO1,CO2,CO3,CO4) [Knowledge]

10. Identify whether the given statement is true or false:
     Mean is used for the qualitative data.

    (CO4,CO2,CO1,CO3) [Knowledge]

PART B

ANSWER ALL THE FOLLOWING QUESTIONS   **4 X 10 = 40M**

11. The following data represent the difference in scores between the winning and losing teams in a sample of 15 college football bowl games from 2004-2005.

Point Difference	Number of Bowl Games
1 - 5	8
6 - 10	0
11 - 15	2
16 - 20	3
21 - 25	1
26 - 30	0
31 - 35	1

Find the mean and standard deviation of the following quantitative frequency distributions.

    (CO2,CO1,CO3,CO4) [Comprehension]

12. You grew fifty baby carrots using special soil. You dig them up and measure their lengths (to the nearest mm) and group the results:

Length (mm)	150 -154	155 - 159	160 - 164	165 - 169	170 - 174	175 - 179	180 - 184	185 - 189
Frequency	5	2	6	8	9	11	6	3

Calculate the value of mode.

    (CO1,CO2,CO3,CO4) [Comprehension]

13. Outline the properties of arithmetic Mean.
     Calculate the mean for the following data:

Class	50-70	70-90	90-110	110-130	130-150	150-170
Frequency	18	12	13	27	8	22

    (CO1,CO2,CO3,CO4) [Comprehension]

14. In a study about viral fever, the number of people affected in a town were noted as

Age	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of people affected	3	5	16	18	12	7	4

Find its variance and coefficient of variation.

    (CO4,CO3,CO2,CO1) [Comprehension]

PART C

ANSWER ALL THE FOLLOWING QUESTIONS   **2 X 20 = 40M**

15. Olivia is studying for a test, and she wonders if her friend, Laney, is also studying for the test. She calls Laney and asks her how long she has been studying. Laney has been studying for her test all week, approximately 8 hours total. Olivia has only been studying for her test for a couple of hours. The next week, Olivia and Laney get their test scores back. Laney got an A on her test, and Olivia got a C. Olivia wonders if there is a correlation between the number of hours spent studying and the grade a student earns. Take a look at the data Olivia collected from her classmates, and see if you can find a correlation.

X	Y
8	98
2	74
6	87
4	82
2	72

    (CO1,CO2,CO3,CO4) [Application]

16. Explain correlation and its types using appropriate examples and diagrams.

    From the data given below, find the coefficient of correlation between marks in Economics and statistics

Marks in Economics	25	28	35	32	31	36	29	38	34	32
Marks in Statistics	43	46	49	41	36	32	31	30	33	39

    On the basis of the result, interpret the relationship between these two subjects.

    (CO1,CO2,CO3,CO4) [Application]

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