



**PRESIDENCY UNIVERSITY  
BENGALURU  
SCHOOL OF LAW  
END TERM EXAMINATION - JAN 2023**

**Semester :** Semester I - 2022

**Course Code :** BCL2003

**Course Name :** Sem I - BCL2003 - Business Statistics

**Program :** B.Com 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. Panel data is the combination of Time series data and \_\_\_\_\_  
(CO4,CO2,CO1,CO3) [Knowledge]
2. What are the other names of dependent variables?  
(CO2,CO4,CO3,CO1) [Knowledge]
3. Consider the simple linear regression equation:  $Y_t = \beta_0 + \beta_1 X_t$   
What is  $X_t$  ?  
(CO2,CO3,CO4,CO1) [Knowledge]
4. Distinguish between time series data and Panel data.  
(CO1,CO4,CO2,CO3) [Knowledge]
5. Identify whether the given statement is true or false: Median can be plotted graphically.  
(CO3,CO1,CO2,CO4) [Knowledge]
6. When there are 3 observations in a series which are repeating equally, then this type of mode is known as \_\_\_\_\_  
(CO1,CO3,CO2,CO4) [Knowledge]
7. What is Cross-sectional data?  
(CO4,CO3,CO1,CO2) [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: While changing the scale, we have to multiply or divide by any specific number from each observation.  
(CO4,CO2,CO1,CO3) [Knowledge]
10. Consider the simple linear regression equation:  $Y_t = \beta_0 + \beta_1 X_t$   
 $\beta_0$  and  $\beta_1$  denote \_\_\_\_\_ and \_\_\_\_\_  
(CO1,CO3,CO4,CO2) [Knowledge]

**PART B**

**ANSWER ALL THE FOLLOWING QUESTIONS**

**4 X 10 = 40M**

11. 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.

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

12. 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.

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

13. The ages of the 112 people who live on a tropical island are grouped as follows:

Age	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89
Number	20	21	23	16	11	10	7	3	1

Calculate the median for the following data. Explain the merits and demerits of Median.

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

14. (i)A survey was conducted by a group of students as a part of their environment awareness programme, in which they collected the following data regarding the number of plants in 20 houses in a locality. Find the mean number of plants per house.

No. of plants	0-2	2-4	4-6	6-8	8-10	10-12	12-14
No. of houses	1	2	1	5	6	2	3

(ii)Find Combined Mean from the following data

$N_1=80, X_1 =520$

$N_2=20, X_2 =420$

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

### PART C

ANSWER ALL THE FOLLOWING QUESTIONS

2 X 20 = 40M

15. Elucidate the superiority of regression analysis over the correlation analysis. There are two variables that need to be studied: weight loss and days spent exercising one month. You are given a data set in which individuals have been asked the number of days they exercise for more than half an hour in one month. Estimate the results of this regression given the data set below:

Exercise Days (Xt)	Weight Loss (in kg) (Yt)
0	4
4	1
8	1.5
12	2
16	4
20	5
24	2

Interpret the results.

If any individual exercises for 100 days, then how much that individual losses the weight?

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

16. 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,CO4,CO3) [Application]

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