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**Presidency University**

**Bengaluru**

**SCHOOL OF COMMERCE**

**Make-Up Examinations, July 2024**

**Winter Semester**: 2023 - 24

**Course Code**: SOC2003

**Course Name**: Business statistics

**Program & Sem**: BCOM 2nd semester

**Date**: 01 July 2024

**Time**: 09.30am to 12.30Pm

**Marks**: 100

**Weightage**: 50%

**Instructions:**

1. *Read the all questions carefully and answer accordingly.*
2. *Question paper consists of three parts.*
3. *Scientific and Non Programable Calculators are Permitted.*
4. *Do not write any information on the question paper other than roll number.*

**Part A**

**Answer any FIVE Questions. (5 Q x 2 M = 10 M)**

1. Briefly point out the basic differences between bar diagram and histogram

(C.O.No.1) [Knowledge]

2.  Write similarities and differences of pooled and panel data (C.O.No.1) [Knowledge]

3. Write the steps of calculating Mode of a grouped frequency distribution (C.O.No.2) [Knowledge]

4. Discuss the difference between measures of skewness and measures of dispersion (C.O.No.3) [Knowledge]

5. How regression analysis is different from correlation analysis, briefly discuss

(C.O.No.4) [Knowledge]

6. Write the standard formula for estimating coefficients of linear regression equation Y = a + bX  
  (C.O.No.4) [Knowledge]

7. Write the steps of calculating median of a grouped frequency distribution.

(C.O.No.2) [Knowledge]

**Part B**

**Answer any FIVE Questions. (5 Q x 10 M = 50 M)**

8. The table given below is a data, in monetary terms, on productivity per acre of land in wheat cultivation and fertilizer usage per acre in the same land over 15 years. Identify the correlation between these variables with the help of a scatter plot

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Productivity (000)** | **60** | **45** | **55** | **15** | **20** | **30** | **15** | **15** | **2** | **10** | **25** | **20** | **10** | **30** | **55** |
| **Fertilizer Use (000)** | **50** | **50** | **30** | **10** | **30** | **15** | **5** | **15** | **5** | **15** | **10** | **30** | **5** | **50** | **40** |

(C.O.No.4) [Application]

9. Formulate a questionnaire to research regarding the usage of online shopping platforms like Amazon, Flipkart etc., and to know what is the consumer preference and why they chose that particular application. Use 5 general questions to know about the demographics of the respondent and 15 specific questions on the topic you want to research over. (C.O.No.1) [Comprehension]

10. Data can be collected from two sources. Mention the two sources of collecting the data and explain the methods of collecting data under both the sources. (C.O.No.1) [Application]

11. Given below is the choices revealed by 40 children about their preference for different fruits. Classify the data and present it in pie diagram

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Apple | Grapes | Grapes | Apple | Mango | Orange | Grapes | Apple | Grapes | Orange |
| Orange | Grapes | Mango | Grapes | Mango | Apple | Mango | Orange | Orange | Grapes |
| Orange | Mango | Grapes | Mango | Orange | Grapes | Grapes | Apple | Grapes | Mango |
| Grapes | Grapes | Mango | Orange | Mango | Grapes | Orange | Mango | Mango | Grapes |

(C.O.No.1) [Application]

12. The table given below shows the number of households with different ranges of monthly income. Calculate arithmetic mean and mode of the distribution

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Monthly income (‘000’) | 10-30 | 30-50 | 50-70 | 70-90 | 90-110 | 110-130 | 130-150 |
| Number of households | 20 | 30 | 40 | 25 | 10 | 15 | 5 |

(C.O.No.2) [Application]

13. The table given below presents the daily common equity share price of Yes Bank and Punjab National Bank for 10 trading days. Compute standard deviation and coefficient of variation of them and identify the riskiest stock among the two.

A.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Yes Bank | 13 | 20 | 17 | 25 | 29 | 30 | 21 | 16 | 15 | 15 |

B.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PNB | 32 | 38 | 45 | 53 | 57 | 55 | 48 | 54 | 63 | 70 |

(C.O.No.3) [Application]

14. Given below is the raw data on runs scored by 40 different batsmen in a cricket tournament. Classify this data using appropriate techniques and present the Less than Ogive based on classification

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | 28 | 15 | 41 | 15 | 18 | 9 | 52 | 54 | 10 |
| 38 | 20 | 55 | 55 | 40 | 6 | 45 | 48 | 5 | 33 |
| 15 | 6 | 0 | 2 | 10 | 6 | 17 | 48 | 5 | 57 |
| 35 | 5 | 24 | 21 | 60 | 0 | 10 | 23 | 20 | 15 |

(C.O.No.1) [Application]

**Part C**

**Answer any TWO Questions. (2 Q x 20 M = 40 M)**

15. Write a note on merits and demerits of Arithmetic mean and Harmonic Mean as measures of central tendency. Calculate the Arithmetic mean and Harmonic mean for the grouped frequency distribution given below.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Interval | 100-150 | 150-200 | 200-250 | 250-300 | 300-350 | 350-400 | 400-450 | 450-500 |
| Frequency | 10 | 15 | 30 | 40 | 20 | 10 | 5 | 2 |

(C.O.No.2) [Application]

16. Data on daily income (X) and daily spending (Y) of a group of people is given in the table below. Fit a linear regression line Y = a + b X by estimating the coefficients. Find values of Y when X= 250 and also when X= 500

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Y** | **100** | **200** | **500** | **50** | **200** | **150** | **250** | **120** |
| **X** | **80** | **150** | **300** | **50** | **200** | **130** | **100** | **50** |

(C.O.No.4) [Application]

17. Table below shows the set of data on intelligence score and performance score of 8 contestants in an event. Compute Spearman’s coefficient of correlation and identify the association between these variables.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Intelligence Score** | **40** | **60** | **80** | **120** | **50** | **100** | **110** | **90** |
| **performance Score** | **50** | **55** | **70** | **80** | **60** | **90** | **85** | **75** |

(C.O.No.4) [Application]