K24U 4081

Reg. No. : .....

Name : .....

**First Semester B.B.A./B.B.A.(RTM/AAM) Degree (C.B.C.S.S. – OBE-Supplementary/Improvement) Examination, November 2024**
**(2019 to 2023 Admission)**
**Complementary Elective Course**
**1C01BBA/BBA(RTM/AAM) : STATISTICS FOR BUSINESS DECISIONS**

Time : 3 Hours Max. Marks : 40

***Instruction** : **Use** of calculator is **permitted**.*

PART – A
**(Short Answer)**

Answer **all** questions, **each** question carries **one** mark.

1. Comment on the following "Statistics are aggregate of facts".
2. Write the additive model of time series.
3. Define Laspeyres index number.
4. Define chain base index number.
5. When the correlation is said to be zero ? Write the range of correlation.
6. Write the formula of regression equation of y on x in terms of correlation coefficient. **(6×1=6)**

PART – B
**(Short Essay)**

Answer **any 6** questions, **each** question carries **two** marks.

7. What are the types of classification ?
8. What is the difference between population and sample ? Write an example for each.
9. Explain secular trend in time series.
10. What do you mean by periodic changes in time series data ?

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11. Explain quantity index number.
12. Check whether Paasche's index number satisfy time reversal test.
13. What are the different types of correlation ?
14. Explain the features of Spearman's correlation coefficient. **(6×2=12)**

PART – C
**(Essay)**

Answer **any 4** questions, **each** question carries **3** marks.

15. Explain the sources of secondary data.
16. Draw a trend line by the method of semi averages to the following data and estimate the sales for the year 2000.

| **Year :** | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|---|---|---|
| **Sales (Rs. Lakhs) :** | 412 | 438 | 444 | 454 | 470 | 482 | 490 | 500 |

17. What is (i) time reversal test and (ii) factor reversal test ? Prove that Fisher index number satisfies both time reversal test and factor reversal test.
18. Explain the uses of index number.
19. A computer operator while calculating the correlation coefficient between two variates x and y for 25 pairs of observations obtained the following.

    $\Sigma x = 125$, $n = 25$, $\Sigma x^2 = 650$, $\Sigma y = 100$, $\Sigma y^2 = 460$, $\Sigma xy = 508$. It was later found that he had copied down two pairs as (6, 14) and (8, 6) while the correct pairs were (8, 12) and (6, 8). Obtain the correct value of the correlation coefficient.
20. What do you mean by cause and effect method ? How we find the mean values of x and y from the two regression lines. **(4×3=12)**



PART – D
**(Long Essay)**

Answer **any 2** questions, **each** question carries **5** marks.

21. i) Explain the limitations of Statistics.
    ii) Explain the role of tabulation in data analysis.
22. Fit a straight line trend by the method of least squares to the following data. Assuming that the same rate of change continues, what would be predicted earnings for the year 1985 ?

| **Year :** | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|---|
| **Sales (Lakh Rs.) :** | 76 | 80 | 130 | 144 | 138 | 120 | 174 | 190 |

23. From the following data of the wholesale process of wheat for ten years construct index numbers taking (a) 1989 as base and (b) by chain base method.

| **Year** | **Price of wheat** | **Year** | **Price of wheat** |
|---|---|---|---|
| 1989 | 50 | 1994 | 78 |
| 1990 | 60 | 1995 | 82 |
| 1991 | 62 | 1996 | 84 |
| 1992 | 65 | 1997 | 88 |
| 1993 | 70 | 1998 | 90 |

24. Find the two regression lines from the following data.

| **X :** | 158 | 160 | 163 | 165 | 167 | 170 | 172 | 175 | 177 | 181 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Y :** | 163 | 158 | 167 | 170 | 160 | 180 | 170 | 175 | 172 | 175 |

Estimate Y, when X = 164 **(2×5=10)**