B.Com. (Hons) DEGREE EXAMINATION, NOVEMBER 2017.

I Year —I Semester

Core Major- Paper III - BUSINESS STATISTICS

Time : 3 Hours Max. Marks : 75

SECTION A – (10 × 2 = 20 marks)

Answer any *TEN* questions

1. What is statistics?

2. List out the essentials of sampling.

3. What is time series?

4. Find the arithmetic mean of the following data. If 3 is added to each, then find the new arithmetic mean.

12, 50, 10, 9, 11, 14, 6

5. Find the median marks of 9 students.

70, 60, 75, 90, 65, 80, 42, 65, 72

6. In a sample of 500 from a town, 280 are tea drinkers and the rest are Coffee drinkers. Can we assume that Coffee and Tea are equally popular in the town at 1% level of significance?

7. The mean of two large samples of 1,000 and 2,000 members are 67.5 and 68.0 inches respectively. Can the samples be regarded as drawn from the same population of S.D. 2.5 inches? Test at 5% level of significance.

8. Find the probability of setting 3 white balls in a draw of 3 balls from a box containing 5 white and 4 block balls.

9. The profits earned by 10 public undertakings and given below :

27, 32, 16, 15, 10, 30, 15, 29, 19, 35

Calculate the range and coefficient of range.

10. From the following data construct an index for 1995 taking 1994 as base :

|  |  |  |
| --- | --- | --- |
| Commodities | Prices in ‘94 | Prices in ‘95 |
| A  B  C  D  E | 100  80  160  220  40 | 140  120  180  240  40 |

SECTION B – (5 × 5 = 25 marks)

Answer any *FIVE* questions

11. Enumerate the characteristics of Statistics.

12. Write about the significance of the study of correlation.

13. Calculate the arithmetic mean of the daily income of 10 families.

Families : 1 2 3 4 5 6 7 8 9 10

Income ` 18 20 35 55 38 54 100 85 37 53

14. Two samples are drawn from normal population. From the following data test whether the two samples have the same variance at 5% level:

[P.T.O.]

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sample 1 | 60 | 75 | 71 | 74 | 76 | 82 | 85 | 87 |  |  |
| Sample 2 | 61 | 66 | 67 | 85 | 78 | 63 | 85 | 86 | 88 | 91 |

15. The following marks have been obtained by 11 students in one subject.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Paper I | 80 | 45 | 55 | 56 | 58 | 60 | 65 | 68 | 70 | 75 | 85 |
| Paper II | 82 | 56 | 50 | 48 | 60 | 62 | 64 | 65 | 70 | 74 | 90 |

Use paired t – test to find whether there is a significant difference between the marks in 2 papers.

16. A can solve 75% of problems in a book and B can solve 70% what is the probability that either A or B can solve a problem chosen at random?

17. Calculate the regression equation from the following data.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X | 6 | 2 | 10 | 4 | 8 |
| Y | 9 | 11 | 5 | 8 | 7 |

18. Using three year moving average determine the trend and short term fluctuations.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
| Productions  (000‘s tons) | 21 | 22 | 23 | 25 | 24 | 22 | 25 | 26 | 27 | 26 |

SECTION – C (2 × 15 = 30 marks)

Answer any *TWO* questions

**PART –A (Compulsory)**

19. Out of 8,000 graduates in a town 800 are females, out of 1,600 graduate employees, 120 are females. Use X2 to determine if any distinction is made in appointment on the basis of sex, value of X2 for 5% level for the degree of freedom is 3.4.

**PART - B**

20. (i) Find the Harmonic mean for the following individual data :

6, 15, 35, 40, 900, 520, 300, 400, 400, 1800, 2000

(ii) Find the quartiles from the following information

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Age (yrs) | Below  20 | 20-25 | 25-30 | 30-35 | 35-40 | 40-45 | 45-50 | 55 above |
| No. of employees | 13 | 29 | 46 | 60 | 112 | 94 | 45 | 21 |

21. From the following data find out Kerl Pearson’s Co-efficient of Correlation?

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Demand (Kg) : | 28 | 34 | 41 | 57 | 52 | 68 | 62 | 75 |
| Price (`) : | 14 | 18 | 23 | 28 | 30 | 34 | 37 | 41 |

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