

Sree Chaitanya Mahavidyalaya
M.Com. (Semester-1) Examination-2022
Business Statistics Paper-COMPCOR05T

Full Marks-40

Time-2 Hours

Group-A

1. Answer any five questions **5x2=10**
- (a) What is the criteria for positive association of two attributes?
- (b) Differentiate between 'Sampling errors' and 'non-sampling errors.'
- (c) What do you mean by the term 'Random sampling'?
- (d) State the characteristics of 'Standard normal variable'.
- (e) Define the term 'Standard Error'.
- (f) What do you mean by 'Correlation coefficient' in the context of a bi-variate data set?
- (g) Explain the terms 'Null hypothesis' and 'Alternative hypothesis.'
- (h) How is the 'Power of a test' related to Type-II error?

Group-B

Answer any two questions

2x5 =10

2. Define Yule's coefficient of association.
 Eighty-eight residents of a city were interviewed during a sample survey to study their smoking and tea-drinking habits. It was found that out of 68 tea-drinkers 35 are smokers and 12 persons are neither tea-drinkers nor smokers. By calculating the coefficient of association, explain the result.
3. Explain the meanings of partial and multiple correlation coefficients along with their significances.
4. If $r_{12} = 0.69, r_{13} = 0.46$ and $r_{23} = -0.39$, find the values of $r_{12.3}, r_{13.2}$ and $r_{23.1}$.
5. If 2% of the bulbs manufactured by a Company are defective, what is the probability that in a sample of 300 bulbs, 6 will be defective? Use Poisson distribution. (Given $e^{-6} = 0.00248$).

Group-C

Answer any two questions

2x10=20

6. Describe briefly the main objectives of sampling.
 Age in years of 5 persons are 14, 19, 17, 20, 25. Obtain the sampling distribution of sample mean for sample-size 3 using SRSWOR. Calculate the S.E of the sample mean.
7. What are 95% and 99% confidence limits of population proportion?
 Out of 50,000 Life Insurance Policies, a sample of 200 policies are taken and it's found that 10 policies are for less than Rs. 5,000/-. How many such policies are expected to be there in the total at 95% confidence interval?

8. Write down the test-statistic for the test of a specified sample mean for a small sample (with size < 30), normally distributed, when the population standard deviation is unknown.

A certain medicine when administered to each of 12 patients, resulted in the following changes in their blood pressure: 5, 2, 8, -1, 3, 0, -2, 1, 5, 0, 4, 6 units. Has the medicine increased the blood pressure of the patients in general? Clarify. [Given: For $v=11$, $t_{.05}=1.796$ & $t_{.025}=2.201$]

9. Define the degrees of freedom of a test.

A sample of weights of size 10 is drawn from a normal population. The weights (in Kg) are 49, 52, 48, 55, 43, 47, 53, 45, 40, 38. Can the population variance of the weights of students be 20 sq.kg? Justify.

(Given that $\chi^2_{0.05} = 16.92$ (for d. o. f. = 9) & $\chi^2_{0.05} = 18.31$ (for d. o. f. = 10)).

Send your answer scripts to this e-mail

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