TM241497P

Reg. No :.....

Name :.....

P.G.D.M (C.S.S) EXAMINATION, NOVEMBER 2024

2024 ADMISSIONS REGULAR

SEMESTER I - CORE COURSE BUSINESS ANALYTICS

BA1C02TM20 - Statistics for Business

Time : 3 Hours **Maximum Weight : 30**

Part A

I. Answer any Eight questions. Each question carries 1 weight **(8x1=8)**

1. List out non-probability sampling methods.
2. Give the mean and variance of the binomial distribution.
3. Give the mean, standard deviation and variance of a normal distribution.
4. List out some probability sampling methods.
5. Define t - statistic.
6. Explain the different types of sampling techniques
7. Define the level of significance.
8. Define the power of a statistical test.
9. Explain correlation.
10. Explain scatter diagram

Part B

II. Answer any Six questions. Each question carries 2 weight **(6x2=12)**

11. A manufacturer who produces medicine bottles finds that 0.1 percent of the bottles are defective. The bottles are packed in boxes containing 500 bottles. A drug manufacturer buys 100 boxes from the producer of bottles. Using Poisson distribution, find how many boxes will contain:

    1. No defectives
    2. At least two defectives.

12. A fair coin is tossed. Find the probability of getting two heads on two successive tosses and also find the probability of getting three heads on three successive tosses.
13. Compare probability sampling and non-probability sampling.
14. Differentiate simple random sampling and stratified random sampling.
15. In a sample of 8 observations, the sample variance is found to be 13.5. In another sample of 10 observations, the value was found to be 11.3. Test whether the difference in the variances is significant at the 5% level.
16. Explain the test for randomness.
17. Let $8x-10y+66 = 0$ and $40x-18y = 214$ be two regression equations and variance of x is 9. Find the coefficient of correlation between x and y.
18. The ranking of 10 students in accordance with their performance in two subjects A and B are as follows:

A	6	5	3	10	2	4	9	7	8	1
B	3	8	4	9	1	6	10	7	5	2

Calculate the rank correlation coefficient and comment on its value.

Part C

III. Answer any Two questions. Each question carries 5 weight **(2x5=10)**

19. 1. Explain the rule of multiplication 2. A fair coin is tossed. Find the probability of getting two heads on two successive tosses and also find the probability of getting three heads on three successive tosses.

20.
    1. Explain Z-statistic and give the confidence interval for estimating a population means.
    2. A manufacturer of ball pens claims that a certain pen he manufactures has a mean writing life of 400 pages with a standard deviation of 20 pages. A purchasing agent selects a sample of 100 pens and puts them for a test. The mean writing life for the sample was 390 pages. Should the purchasing agent reject the manufactures claim at a 5% level?

21. Random samples are drawn from two populations and the following results were obtained:

Sample X	16	17	18	19	20	21	22	24	26	27
Sample Y	19	22	23	25	26	28	29	30	31	32

Find the variance of two populations and test whether the two samples have the same variance.

22. Given N=100,$\sum$ X=12500, $\sum Y$ = 8000, $\sum X^2$ = 1585000 , $\sum Y^2$ = 648100 and $\sum XY$ = 1007425.
For the above data obtain the regression equation of Y and X.