TM242145M

Reg. No :.....

Name :.....

MASTER'S DEGREE (C.S.S) EXAMINATION, MARCH 2024

2023 ADMISSIONS REGULAR

SEMESTER II - CORE COURSE

EC2C10TM20 - Statistical Methods for Economic Analysis

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

Part A

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

1. Define standard normal distribution.
2. Explain Central Limit Theorem.
3. What is meant by a sampling distribution?
4. Explain sampling errors.
5. What is meant by consistency of a point estimate?
6. What are the properties of a good point estimate?
7. Give the test statistic for testing whether the proportion in a population is equal to a specified value.
8. Write down the test statistic for testing equality of means of two normal populations using large samples, when the standard deviations in the populations are known.
9. Distinguish between Quantitative and Qualitative research.
10. List the characteristics of a research design.

Part B

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

11. What are the uses of lognormal distribution in Economics?
12. Explain the relation between normal and lognormal distributions. Give the expression for mean of lognormal distribution with parameters μ and σ .
13. Give an example each of statistics following t, χ^2 and F distributions.
14. If 7, 9, 12, 5, 7, 6, 11, 4, 8, 7, 6 are the observations on a sample of size 11 from a Poisson population with parameter λ , obtain the value of m.l.e. of λ .
15. If $T_1 = x_1+x_2-x_3$ and $T_2 = (x_1+x_2+x_3)/3$ are two unbiased estimators of a parameter μ (mean) of a population, which among T_1 and T_2 is more efficient in estimating μ (Given that the variance in the population is σ^2).
16. Explain Mann-Whitney U test for small samples.
17. Explain the procedure of testing equality of variances of two normal populations when small samples are taken from the populations.
18. Describe the characteristics of a good research tool.

Part C

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

19. (a) Six unbiased coins were tossed simultaneously. Find the probability of getting (i) Exactly 3 heads, (ii) No heads. (b) A player tosses two coins. If two heads appear he wins Rs. 4. If one head appears he wins Rs. 2. But if two tails appear he must pay Rs. 3 as penalty. Calculate the expected value of the game.

20. (a) Explain the situation under a Binomial distribution arises.

    (b) Fit a Binomial distribution to the following frequency distribution and find the expected frequencies

x:	0	1	2	3	4
f:	4	30	36	25	5

21. (a) Explain interval estimation of a parameter.

    (b) A random sample of size 10 from a normal population gave values 9, 14, 10, 12, 7, 13, 11, 12, 10, 8. Obtain 95% and 99% confidence intervals for mean of the population.

22. A potential buyer of light bulbs bought 50 bulbs each of two brands A and B. Upon testing the bulbs, he finds that the sample from brand A had a mean life of 1282 hours with a standard deviation of 80 hours whereas the sample from brand B had a mean life of 1208 hours with a standard deviation of 70 hours. Can the buyer conclude that the mean life of brand A is higher than that of brand B?