TB247697T

Reg. No :.....

Name :.....

Integrated M.A. Programme (C.S.S) EXAMINATION, NOVEMBER 2024

2021 ADMISSIONS REGULAR

SEMESTER VII - CORE COURSE ECONOMICS

EC07C31IM20 - Advanced Quantitative Methods in Economics

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

Part A

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

1. Difference between normal distribution and standard normal distribution.
2. In a binomial distribution sum of mean and variance is 15 and product of mean and variance is 54,then find the value of n.
3. Difference between probability and non- probability sampling methods.
4. If P(A)=1/2 P(B)=1/4 and P (A ∪ B) =1/6.Find P (A∩ B)
5. Distinguish between point estimates and interval estimates
6. Define point estimation
7. Define hypothesis.
8. .Difference between type I and type II error.
9. Write a note on parametric tests.
10. Write a note on sign test.

Part B

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

11. Write the properties of Normal Distribution
12. Find lognormal parameters to the following data

Size	1-7	8-10	11-13	14-16	17-19	20-30
Frequency	8	15	13	10	6	2

13. Urn 'A' contains 4 white and 3 red marbles and Urn 'B' contains 2 white and 5 red marbles. One of the Urn is to be chosen at random and a marble is to be selected from the chosen urn. What is the probability of drawing a white marble?
14. State the addition and multiplication rule of probability.
15. What do you mean by estimation? Explain the two methods of estimation.
16. Explain Crammer-Rao inequality.
17. Write the assumptions and uses of t test (small sample test).
18. .The data below are the number of hours per week of 15 students. At the 0.05 level of significance, test the claim that the median work hours is more than 12 hours per week. Perform one sample sign test. (Table Value=3)

18	16	15	13	9	15	13	11	15	18	10	14	20	14	12

Part C

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

19. (A)Given A,B,C are independent events P(A)=0.3,P(B)=0.2 and P(B)=0.2 and P(C)==0.4.Find the probability for (i)=all occurring (ii)none occurring(iii)at least one occurring (iv)exactly one occurring (B)A candidate is selected for interview for three posts. For the first post there are 3 candidates, for the second post there are 4 and for the

third there are 2.What are the chances of his getting at least one post? (C)If P(A)=1/13,P(B)=1/4 and P(AUB)=4/13.Find P(A∩B)

20. Explain the concept of point estimation and the two methods of point estimation in detail.
21. A soap manufacturing company was distributing a particular brand of soap through a number of retail shops. Before a heavy advertisement campaign, the mean sales per week per shop was 140 dozens. After the campaign, a sample of 20 shops was taken and mean sales was found to be 147 dozen with standard deviation 16.Can you consider advertisement effective. (B)One thousand articles from a factory were examined and found to be 3% defective. Among 1500 similar articles from a second factory are found to be only 2 % defective. Can it reasonably be concluded that the product of the first factory is inferior to the second.
22. Students in a English Professors class records whether he is late(L) or on time (T) for class each day. The results are shown below. At α=0.05, can you conclude that this sequence is not random. (Lower critical value=18,Upper critical value=18) T T L T L L L L L T T T L L L L L L L L T L T L L L T L L L