9c 2/9/24

TM247393J

Reg. No: .....

Name: .....

INTEGRATED M A PROGRAMME IN SOCIAL SCIENCES – ECONOMICS(C.S.S) EXAMINATION, AUGUST 2024

(2020 Admission Regular Accelerated Semester)
SEMESTER VII - CORE COURSE (ECONOMICS)

EC07C31IM20: ADVANCED QUANTITATIVE METHODS IN ECONOMICS

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

Part A

Answer any eight questions. Each question carries 1 weight **(8 x 1=8)**

1. What is a Lognormal Distribution?
2. Difference between Discrete and Continuous distribution.
3. Difference between Statistic and Parameter.
4. Write down the expression for P(A/B) and P(B/A)
5. Difference between estimator and estimate.
6. What do you mean by estimation?
7. Difference between simple and composite hypothesis.
8. What do you mean by power of a test?
9. Difference between Parametric and Non-Parametric test.
10. What do you mean by Kendall's coefficient of concordance.

Part B

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

11. The variable X follows a Normal Distribution with mean=45 and S. D=10. Find the probability that (i)$x>60$ (ii) $40<x<56$
12. Explain the properties of Normal Distribution
13. If the probability of horse A winning a race is 1/5 and the probability that of a horse B winning the same is 1/6.What is the probability that one of the horses will win.
14. 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?
15. Explain the desirable properties of a good estimator.
16. Write a note on Maximum Likelihood method.

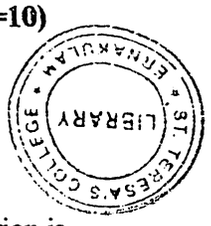
17. The average number of articles produced by two machines per day are 200 and 250 with standard deviations 20 and 25 respectively on the basis of 25 day's production. Can you regard both the machines equally efficient at 1% level of significance.

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

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



19. What is Sampling? Explain the two primary types of Sampling methods.

20. What is estimation? Explain the two methods of estimation

21.(i) Explain the procedure of testing independence of two attributes.

(ii)From the following data use χ^2 test (contingency table) and conclude whether inoculation is effective in preventing tuberculosis.

	Attacked	**Not Attacked**
Inoculated	31	469
Non-Inoculated	185	1315

22.A medical researcher wants to determine whether a new drug affects the number of headache hours experienced by his patients. For that, he selects 7 patients and asks each to give the number of headache hours (per day) each experience before and after taking the drug.

The results are shown in the table below. At α=0.05, can the researcher conclude that the new drug affects the number of hours? Perform Wilcoxon signed rank test. **(Table Value=2)**

Patient	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Headache hours (before)	0.8	2.4	2.8	2.6	2.7	0.9	1.2
Headache hours (after)	1.6	1.3	1.6	1.4	1.5	1.6	1.7