K25FY3412 Pages: 2 Reg No:.....
Name:.....

Third Semester FYUGP Degree Examination NOVEMBER 2025

KU3DSCSTA224 - QUANTITATIVE TECHNIQUES IN DATA ANALYSIS - II

2024 Admission onwards

Time : 1.5 hours Maximum Marks : 50

Section A

Answer any 6 questions. Each carry 2 marks.

1. Distinguish between one-tailed test and two-tailed test.
2. Give the confidence interval for the mean of a normal population, when the standard deviation of the population is known.
3. What is the probability that a non-leap year selected will contain 53 fridays?
4. Define conditional probability.
5. How do you calculate expected frequencies for a 2×2contingency table in chi square test of independence of attributes?
6. When do you use Mann-Whitney U test?
7. Four unbiased coins are tossed simultaneously, what is the probability of getting 2 heads?
8. If Z has a standard normal distribution, find $P(-1 < Z < 2)$.

Section B

Answer any 4 questions. Each carry 6 marks.

9. Use chi-square test and check whether innoculation is effective in preventing tuberculosis. (α=0.05)

	Attacked	Not attacked	Total
Inoculated	31	469	500
Non inoculated	185	1315	1500
Total	216	1784	2000

10. Two sample polls of votes for 2 candidates A and B for a public office are taken, examine whether the nature of the area is related to the voting preference in this election, using chi-square test of independence. (α=0.05)
11. Explain the procedure of Mann-Whitney U test.

Area	Votes for A	Votes for B	Total
Rural	620	380	1000
Urban	550	450	1000
Total	1170	830	2000

12. X follows a Poisson distribution with parameter λ, and $2P(X = 0) = P(X = 2)$. Find
(i) $P(X < 2)$. and (ii) $P(1 < X < 4)$.

13. A random variable X follows normal distribution with mean 45 and S.D 10. Find the probability that for an item to fall (i) beyond 60 (ii) between 40 and 50.

14. If Z follows standard normal distribution, find the probability that Z is
(a) between 0.87 and 1.28 (b) between -0.34 and 0.62 (c) more than 0.85
(d) more than -0.65.

Section C

Answer any 1 questions. Each carry 14 marks.

15. The nicotine content of two samples of tobacco were found to be as follows.

Sample A	24	27	26	21	25	
Sample B	27	30	28	31	22	36

Can it be said that the two samples come from populations with same mean?

16. There are two book shelves. The first shelf has 8 Statistics books and 4 Mathematics books. The second shelf has 10 Statistics and 15 Mathematics books. One of the two shelves is selected at random. Two books are then selected at random from the selected shelf. Find the probability that (i) both the selected books are Mathematics books (ii) both the selected books are Statistics books (iii) One of them is a Mathematics book and the other is a Statistics book.