24U3149 (Pages: 2) Name : .....

Reg. No : .....

THIRD SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2025

(FYUGP)

CC24USTA3MN205 - INFERENTIAL STATISTICS

(Statistics - Minor Course)

(2024 Admission - Regular)

Time: 2.0 Hours Maximum: 70 Marks

Credit: 4

Part A (Short answer questions)

Answer ***all*** questions. Each question carries 3 marks.

1. Discuss two types of errors in testing hypothesis. [Level:2] [CO1]
2. Describe statistical hypothesis. [Level:2] [CO1]
3. Describe one tailed and two tailed tests. [Level:2] [CO1]
4. Explain parameter and statistic. [Level:2] [CO1]
5. Compute if $Z \sim N(0,1)$,then find $P(z < -1.5)$. [Level:3] [CO2]
6. Report the important applications of chi -Square tests. [Level:2] [CO2]
7. Report the Chi Square test for goodness of fit. [Level:2] [CO3]
8. Summarize the assumptions of t-test for population mean. [Level:2] [CO3]
9. Describe any two assumptions of ANOVA. [Level:2] [CO4]
10. Explain Analysis of variance. [Level:2] [CO4]

(Ceiling: 24 Marks)

Part B (Paragraph questions/Problem)

Answer ***all*** questions. Each question carries 6 marks.

11. Describe critical region and critical value. [Level:2] [CO1]
12. Describe the normal distribution and discuss its demerits. [Level:2] [CO2]
13. The heights of school children in an institution are normally distributed with mean 54 inches and standard deviation 12 inches. Apply the normal distribution at α = 0.05 to determine the percentage of students whose [Level:3] [CO2]

    (i) Heights lie between 46 inches and 56 inches.

(ii) Heights lie between 50 inches and 70 inches.

(iii) Heights are greater than 60.

14. A sample of size 8 taken from a normal population is: 6, 8, 11, 5, 9, 11, 10, 12. Implement whether this sample can be regarded as drawn from a population with mean 7 at the 2% level of significance. [Level:3] [CO2]

15. Discuss the properties of normal distribution. [Level:2] [CO2]

16. Interpret the steps for testing of hypothesis. [Level:2] [CO3]

17. Based on the following data examine whether educational background and belief in astrology are independent of each other. [Level:3] [CO3]

	Have horoscope	Do not have horoscope
Graduates	287	147
Undergraduates	437	219

Test for independence at the 0.05 level.

18. Explain the procedure of one-way ANOVA. [Level:2] [CO4]

(Ceiling: 36 Marks)

Part C (Essay questions)

Answer any ***one*** question. The question carries 10 marks.

19. Fit a binomial distribution to the following data [Level:3] [CO3]

No. of Heads	0	1	2	3	4	5	6	7	8
Frequency	2	10	25	50	75	58	21	9	8

Apply χ^2 test and test at 5% level of significance,where p = 1/2.

20. Given yield(in kg) per acre for 4 varieties of treatment. [Level:3] [CO4]

1	**2**	**3**	**4**
20	25	23	23
19	23	20	20
21	21	22	20

Carry out analysis of variance and state conclusions.

(1 × 10 = 10 Marks)

****