



22102935

QP CODE: 22102935

Reg No :

Name :

B.Sc DEGREE (CBCS) REGULAR EXAMINATIONS, AUGUST 2022

Fourth Semester

B.Sc Psychology Model I

Complementary Course - ST4CMT24 - STATISTICS -STATISTICAL INFERENCE

2020 Admission Only

6AB4BD03

Time: 3 Hours

Max. Marks : 80

Part A

*Answer any **ten** questions.*

*Each question carries **2** marks.*

1. Explain simple hypothesis with an example.
2. What is power in a statistical hypothesis testing?
3. Write a note on Standard Error.
4. What is the standard error for testing the equality of means of two populations based on large samples when the standard deviations are unknown and equal.
5. Define the test statistic for testing equality of proportions in two populations based on large sample.
6. How is the d.f of the Chi-square test for goodness of fit determined?
7. State the form of the χ^2 for testing independence of attributes in contingency tables and obtain its expression in the special case of 2x2 contingency table.
8. Give the statistic under the null hypothesis of testing the difference of means of two normal populations for small sample, when σ known.
9. Give the statistic under the null hypothesis of testing the difference of means of two normal population for small sample, when σ unknown.
10. How to test a hypothesis about a proportion when σ known?
11. Explain small sample tests with example.





12. Explain the use of Students t distribution.

(10×2=20)

Part B

Answer any **six** questions.

Each question carries **5** marks.

13. What do you understand by the terms testing of hypothesis and level of significance?
14. Discuss in brief the terms null hypothesis and alternative hypothesis.
15. Explain the procedure involved in testing of hypothesis.
16. Distinguish between standard error and standard deviation by giving suitable examples.
17. A random sample of 400 members is found to have a mean of 4.45 cm. Can it be regarded as a sample from large sample population whose mean is 5 cm and whose variance is 4?
18. In a certain election a candidate claims that he would poll atleast 60% of the votes. Describe the test procedure based on the large samples to test the hypothesis formulated on the candidates claim. State the assumptions made.
19. A sample of size 8 from a normal population with SD 3 is 6,8,11,5,9,11,10,12. Examine whether the mean of the population is 7.
20. A sample from a population is 6, 2,3,10,11,2,12,1 . Can it be regarded as a sample from a population with mean 7.2? (Given table values of students t at $\alpha = 0.05$ and with df 6,7,8 are 2.45, 2.36, 2.31 respectively).
21. A group of 10 children were tested to find out how many digits they could repeat from memory after hearing them once. They were given practice at this test during the next week and were then tested. Is the difference of the performance of the 10 children at the 2 tests significant.

Test 1:	6	5	4	7	8	6	7	5	6	8
Test 2:	7	7	6	7	9	6	8	6	6	10

(6×5=30)

Part C

Answer any **two** questions.

Each question carries **15** marks.





22. In a sample of 600 men from a certain city, 400 are found to be smokers. In 900 from another city 450 are smokers. Do the data indicate that the cities are significantly different as far as smoking habits of people are concerned. ($\alpha = 0.05$)
23. What do you understand by Chi-square test? Explain briefly its uses and limitations. How do you calculate Chi-square in a 2x2 contingency table where the frequencies are given.
24. Suppose an urn contains 30 marbles. Some marbles are red, and the rest are green. A researcher hypothesizes that the urn contains 15 or more red marbles. The researcher randomly samples five marbles, [with replacement](#), from the urn. Two of the selected marbles are red, and three are green. Based on the sample results, should the researcher reject the null hypothesis? Use a significance level of 0.20.
25. The following figures give the prices in rupees of a certain commodity in a sample of shops selected at random from a city A. Assuming the distribution of prices to be normal, examine whether the standard deviation of prices is 0.3.

7.41, 7.77, 7.44, 7.40, 7.38, 7.93, 7.58, 8.28, 7.23, 7.52, 7.82, 7.71, 7.84, 7.63, 7.68

(2×15=30)

