

B. Sc. DEGREE END SEMESTER EXAMINATION – MARCH 2022**SEMESTER 4: STATISTICS FOR PSYCHOLOGY****COURSE: 19U4CPSTP04 – STATISTICAL INFERENCE – PAPER IV***(For Regular 2020 Admission)*

Time: Three Hours

Max. Marks: 75

PART A***Answer all questions. Each question carries 1 mark***

1. The hypothesis which is accepted when the null hypothesis is rejected is called thehypothesis
2. The probability of type I error is called the
3. The distribution of sample statistic is called
4. The probability of rejecting the null hypothesis when it is false is called
5. In a test procedure, the value of test statistic was obtained as 2.36 and the critical value for the selected level of significance was 2.58. Then the null hypothesis is
6.distribution is used for testing the equality of two population means using small samples with known population standard deviations.
7. The test statistic used for testing the hypothesis concerning variance of a population follows distribution.
8. F test is used for testing the equality of two
9. The degrees of freedom for testing the independence of two attributes when the observed frequencies are in a table of m rows and n columns is
10. For a 2 x 2 contingency table with observed frequencies 12, 15, 10 and 20, the value of Chi-square test statistic for testing independence is (1 x 10 = 10)

PART B***Answer any eight of the following questions. Each question carries 2 marks***

11. Define Null hypothesis
12. Define Type II error
13. Define statistic.
14. Define rejection region.
15. A manufacturer of electric bulbs claims that the mean life of the bulbs is 2000 Hours. Formulate the hypothesis to test the claim of the manufacturer.
16. Out of 1200 people from a city, 940 have the habit of smoking. Test whether proportion of smokers is 75%. (Table value for 5% level of significance is 1.65)
17. Briefly explain paired sample t test.
18. What are the uses of chi-square distribution in testing of hypothesis?
19. Define degrees of freedom.
20. Give the statistic used for testing equality of variances of two populations. (2 x 8 = 16)

Answer any five of the following questions. Each question carries 5 marks

21. Distinguish between simple and composite hypothesis
22. Briefly explain the steps involved in hypothesis testing.
23. Briefly explain how you will test the hypothesis concerning proportion of units possessing a characteristic in a population.
24. The mean life of 24 scooter tyres was found to be 24910 Hours with a standard deviation of 2250 Hours. Can it be regarded as a sample from a population having mean life of 25000 Hours. (Assume significance level of 5%)
25. A sample of 80 students from College A and 120 students from College B were given a test to assess the preparedness for higher education. The mean score of students from College A was found to be 132 while it was 137 for students from College B. Assuming a standard deviation of 22 for preparedness score of students, test whether students of both the Colleges are having same level of score at 5% level of significance.
26. In a random sample of 600 men and 700 women from a city 400 and 440 women are found to be in favour of new policy. Do the data indicate at 5% level of significance that the proportion of men and women differ significantly in their attitude towards the new policy?
27. The marks of 10 students are recorded below.
70, 120, 110, 101, 88, 83, 95, 107, 100, 98.
Do the data support the assumption that mean mark of students in the college is 100?

(5 x 5 = 25)

PART D

Answer any two of the following questions. Each question carries 12 marks

28. Explain how you will test the equality of two population means when
 - (a) The sample sizes are large and population variances are known
 - (b) The sample sizes are small and population variances are not known
29. The distance travelled by of 8 males and 10 females to reach the office from home are given below. Test whether the mean distance travelled by males is significantly higher that of females.

Distance travelled in Kilometers										
Males:	70,	85,	90,	75,	80,	60,	65,	65		
Females:	60,	60,	75,	70,	65,	60,	55,	65,	70,	60

30. A psychometric test was administered to 10 students to assess the mental strength before and after a training programme. The results are given below. Test whether the mental strength increased significantly after training.

I Q										
Before training:	46,	57,	49,	64,	50,	56,	42,	54,	60,	50,
After training:	49,	63,	45,	72,	54,	60,	48,	54,	56,	51

31. Explain how you will test the independence of two attributes.

(12 x 2 = 24)