

**FOURTHSEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2024****(Regular/Improvement/Supplementary)****PSYCHOLOGY****GPSY4C08T: STATISTICAL TECHNIQUES FOR PSYCHOLOGY****Time:2Hours****MaximumMarks: 60****SECTION A: Answer the following questions. Each carries *two* marks.****(Ceiling 20Marks)**

1. What is a non parametric test?
2. Define the concept of validity.
3. What do you mean by critical difference?
4. Define run.
5. What are the mean and standard deviation of the distribution of the Wilcoxon's rank sum test for large sample sizes?
6. Give the formula for calculating statistic  $\chi^2$  in case of contingency table of order (2x2).
7. Comment on test retest reliability.
8. Define Z score.
9. What do you mean by interaction effect?
10. What is the test statistic used in the one sample sign test for large samples sizes?
11. Give an example for  $2^3$  factorial experiment.
12. What is the difference between Chi square test of independence and homogeneity?

**SECTION B: Answer the following questions. Each carries *five* marks.****(Ceiling 30Marks)**

13. Eight students were rated by two different panels of judges for being selected as captain for a hockey team. Their pooled rating scores on the two occasions are given in the following table. Can you conclude from the data by using the sign test that the opinions of two panel differ significantly?

Students	1	2	3	4	5	6	7	8
Rating scores of Panel 1	15	13	9	11	8	12	13	6
Rating scores of Panel 2	13	12	8	13	6	14	13	5

14. Explain Kruskal Wallis test.
15. Define factorial experiment. What are the advantages of factorial experiment?
16. Describe the Yates method for calculating factorial effect total in a  $2^2$  factorial experiment.

**(PTO)**

17. What is analysis of variance? Point out the underlying assumptions in its application.
18. A bank has an ATM installed inside the bank, and it is available to its customers only from 7AM to 6PM Monday through Friday. The Manager of the bank wanted to investigate if the number of transactions made on this ATM are the same for each of the 5 days of the week. The Manager randomly selected one week and counted the number of transactions, the information she obtained is given below:

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Number of users	253	197	204	279	267

Using the Chi square test at the 1% level of significance, can we reject the null hypothesis that the number of people who use this ATM each of the 5 days of the week is the same?

19. Explain the chi square test of independence of two attributes with the help of an example.

**SECTION C: Answer any *one* question. Each carries *ten* marks.**

20. In a learning experiment, three subjects made the following number of correct responses in a series of 7 trials.

Subjects	Trials						
	I	II	III	IV	V	VI	VII
A	5	9	3	7	9	3	7
B	6	8	4	5	2	4	3
C	5	7	3	5	9	3	7

Apply the technique of two-way ANOVA to test the difference between means

(use  $\alpha = 0.05$ )

21. Define reliability. Explain various types of reliability with suitable examples.

**(1 x 10 = 10 Marks)**