

FOURTH SEMESTER (CBCSS-UG) DEGREE EXAMINATION, APRIL 2022

Statistics

STA 4C 02—STATISTICAL TECHNIQUES FOR PSYCHOLOGY

(2019 Admission onwards)

Time : Two Hours

Maximum : 60 Marks

Section A*Answer at least eight questions.**Each question carries 3 marks.**All questions can be attended.**Overall Ceiling 24.*

1. What are the assumptions of ANOVA ?
2. Write down the test statistic of chi-square test for testing homogeneity.
3. Define interaction effect in factorial design.
4. Define nominal and ordinal scale of measurements.
5. What are the applications of chi-square test ?
6. Define critical difference.
7. Explain the concept of pre-testing the questionnaire.
8. State the null and alternative hypotheses of chi square test for independence of attributes.
9. Define non parametric test.
10. Describe the ANOVA model for one way classified data.
11. Write a short note on run test.
12. What are the reasons to use non parametric tests ?

(8 × 3 = 24 marks)

Section B*Answer at least five questions.**Each question carries 5 marks.**All questions can be attended.**Overall Ceiling 25.*

13. Conduct the analysis of variance for a one way classified data.
14. Explain the chi-square test for goodness of fit.
15. Explain Kruskal Wallis Test.

Turn over

16. Explain 2^3 factorial experiment with an example.
17. Briefly explain the reliability and validity of test scores.
18. The demand for a particular spare part in a factory was found to vary from day to day. In a sample study the following information was obtained :

Digits	Mon	Tues	Wed	Thurs	Fri	Sat	Total
Frequency	1124	1125	1110	1120	1126	115	6720

Test whether the number of parts demanded does not depend on the day of the week at 5% level of significance.

19. Using Sign test, test whether the median body length (θ) of frogs of a particular variety is $H_0 : \theta_0 = 6.9$ cms against the alternative hypothesis $H_1 : \theta_1 = 6.9$ with $\alpha = 0.05$ on the basis of the following measurements :

6.3, 5.8, 7.7, 8.5, 5.2, 6.7, 7.3, 5.6, 8.3, 7.7, 8.2, 6.0, 6.8, 6.9, 7.3, 7.0, 7.1, 6.6, 7.4

(5 × 5 = 25 marks)

Section C

Answer any **one** question.

The question carries 11 marks.

20. The following figures related to the number of units sold in five different areas by four salesmen :

Area	Number of Units			
	A	B	C	D
1	80	100	95	70
2	82	110	90	75
3	88	105	100	82
4	85	115	105	88
5	75	90	80	65

Is there any significant difference at 5% level of significance in the efficiency of these salesmen ?

21. (a) Explain the test procedure for chi square test for independent of attributes.
- (b) Explain the test procedure for chi square test for goodness of fit.

(1 × 11 = 11 marks)