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(FYUGP)

(4th Semester)

PSYCHOLOGY

(MAJOR)

Paper : C-PSY-08

**(Statistical Methods for Psychological
Research—II)**

Full Marks : 75

Pass Marks : 40%

Time : 3 hours

*The figures in the margin indicate full marks
for the questions.*

1. (a) Discuss inferential statistics and its types. Differentiate between one-tailed and two-tailed tests using suitable examples. 7+8=15

Or

- (b) A teacher believes that a new teaching method increases student's test scores. The population mean score is 60, with

a standard deviation of 10. After using the new teaching method, a random sample of 36 students obtain a mean score of 64. Test the teacher's claim at 5% level of significance.

15

2. (a) Describe Student's *t*-test. What are the assumptions of *t*-test for independent groups design?

9+6=15

Or

- (b) A psychologist wants to examine whether there is a significant difference in anxiety scores between two independent groups of college students, seven students were randomly selected from each group, and their scores are mentioned below :

Group A : 72, 68, 75, 70, 69, 74, 71

Group B : 65, 67, 63, 66, 62, 64, 68

Test whether there is a significant difference between the mean scores of the two groups at 5% level of significance.

15

3. (a) What is ANOVA? Discuss the assumptions of one-way ANOVA. Outline the steps involved in one-way ANOVA.

3+7+5=15

Or

- (b) Three independent groups were assessed on perceived stress :

Group A : 55, 60, 58, 62, 57

Group B : 63, 68, 66, 64, 70

Group C : 72, 75, 71, 78, 74

Test the significance of group differences using one-way ANOVA at $\alpha = 0.05$.

15

4. (a) Define chi-square. Explain its role as a measure of discrepancy between observed and expected frequencies. Discuss the assumptions underlying the chi-squared test. 3+5+7=15

Or

- (b) A psychologist examined students' preference for four stress—management activities. Based on prior surveys, the expected frequencies are shown below. A sample produced the following observed data :

Activity	Observed	Expected
Exercise	31	28
Meditation	19	24
Music	36	32
Talking to friends	14	16

(4)

Using the chi-squared test, determine whether the observed preference differ significantly from the expected frequencies at 0.05 level of significance. 15

5. (a) Define non-parametric tests. Compare parametric and non-parametric tests in detail. 3+12=15

Or

- (b) What is SPSS? Discuss its importance and uses in data analysis and psychological research. 2+13=15

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