PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2019
(Fifth Semester)

Branch- **STATISTICS**

STATISTICAL INFERENCE - II

Time : Three Hours Maximum : 75 Marks

SECTION-A (20 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10x2 = 20)

1 Define Hypothesis.
2 What is degrees of freedom?
3 Define UMPT.
4 Define LRT.
5 What is standard error?
6 State the test statistic for testing the regression co-efficient.
7 State the conditions for the validity of Chi square test.
8 Write the formula for testing the homogeneity of several variances
9 What is dichotomy?
10 What is contingency table?

SECTION - B (25 Marks)
Answer **ALL** Questions
ALL Questions Carry' **EQUAL** Marks (5x5 = 25)

11 a Write a note on i) critical region ii) Type I and Type II error.
OR
b Describe the most powerful tests with an example.

12 a State the characteristics of Likelihood ratio criterion.
OR
b Distinguish between MP test and UMP test.

13 a Write the procedure for testing equality of two proportions in the case of large sample tests.
OR
b The correlation co-efficient between the two variables X and Y is 0.94 of 14 randomly selected items. Test the significance of correlation co-efficient ($t_0.05(12)=2.179$)

14 a Define Chi-square test. Mention the applications of chi square test.
OR
b Explain the procedure for testing the difference between two population variances

15 a Explain the Yule's co-efficient of association.
OR
b Explain the test for independence of attributes in a contingency table.

SECTION - C (30 Marks)
Answer any **THREE** Questions
ALL Questions Carry **EQUAL** Marks (3x10 = 30)

16 State and prove Neymann Pearson fundamental lemma.

Cont...

17 Describe the Likelihood ratio procedure for testing the equality of means of two normal populations.

18 The birth weight (in kg) of randomly selected babies from one urban hospital and from one rural hospital are given below:

!

Urban:	2.8	3.0	3.4	2.6	2.7	3.2	3.0	3.1	2.9	2.9	3.0
Rural:	2.4	2.2	2.4	2.6	2.7	3.0	3.1	2.2	2.6	2.7	2.8	2.5

Is there any significants difference between urban and rural area regarding average weight at 5% level of significance (Z0.05=l .96).

19 Explain the procedure for testing the homogeneity of several population variances.

20 What is meant by test of independence? The following data relating to family planning adoption behaviour and relating Female's education.

Female's Education	**Family planning adoption**	
	Yes	**No**
Illiterate	4	6
Educated	8	12

Do you think that female's education influences the family planning adoption? (Chi-square value at ld.f is 3.84)

Z-Z-Z END