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Register Number:

DATE:

**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU-27**

B.Sc. STATISTICS - IV SEMESTER

SEMESTER EXAMINATION - APRIL 2019

**ST: 417 – STATISTICAL INFERENCE – II**

**Time: 1½ Hours Max Marks: 35**

This question paper has **ONE** printed page and **THREE** parts

**PART – A**

**I Answer any FIVE of the following: 5 x 2 = 10**

1. What is monotone likelihood ratio property?
2. Define Likelihood Ratio test statistic
3. Write a note on large sample tests
4. Write down the test statistic for testing independence of attributes with usual notations
5. What do you mean by distribution free tests?
6. What do you mean by Normality assumption?
7. Find the number of runs and length of longest run from the following random sequence DNDDDNNNNDNDNNNDDNDNDNNDNDNDNDNNNNNDNDN

**PART – B**

**II Answer any THREE of the following: 5 x 3 = 15**

1. Show that Binomial distribution has monotone likelihood ratio property in T(X) = $\sum\_{i=1}^{n}X\_{i}$
2. Explain various steps involved in testing of hypotheses
3. Explain the procedure for testing equality of two population means assuming equal variance
4. Explain the procedure for testing significance of population correlation co-efficient
5. Describe Mann Whitney U test

**PART – C**

**III Answer any ONE of the following: 10 x 1= 10**

1. A) Explain the procedure for testing $H\_{0} : P\geq P\_{0} vs H\_{1} : P< P\_{0} $, (4)

 Where, P$= $population Proportion and $P$0 = specified value

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B) Derive uniformly most powerful test for testing H0: $σ^{2} \geq σ^{2}$0 vs H1: $σ^{2}<σ^{2}$0

when X ~ N($μ,σ^{2})$ where $μ$ is known (6)

1. A) What do you mean by odds ratio? (2)

B) Explain any two problems where Chi –square test is applicable (2)

C) Describe Median test for testing, whether two independent samples differ in their central tendencies (6)