14STP06

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2018
(Second Semester)

Branch - STATISTICS

DISTRIBUTION THEORY

Time: Three Hours Maximum: 75 Marks

Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 15 = 75)

1 a Define non central F distribution. Derive the p.d.f of non central F distribution.

OR

b Obtain the sampling distribution of simple correlation coefficient and partial correlation coefficient.

2 a Find the mean and variance of the truncated poisson distribution with parameter X, truncated at the origin.

OR

b Let X and Y are independent and are also normally distributed with mean and standard deviation 1. Find the distribution of (X/Y).

3 a Let X be distributed according to $N(ju, l)$. Then show that Y = CX is distributed according to N (C p, CSC') for C non singular.

OR

b Obtain the necessary and sufficient condition that a quadratic form in normal variable has a chi-square distribution.

4 a Define Wishart distribution. Prove its reproduction property.

OR

b Describe the Hotelling T^2 distribution and classification problem.

5 a Describe principal components.

OR

b Explain canonical variable and canonical correlation.

Z-Z-Z END