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HEF-003-1171001

Seat No. _____

M. Sc. (Statistics) (Sem. I) (CBCS) Examination

November / December – 2017

MS-101 : Basics of Statistical Methods

Faculty Code : 003

Subject Code : 1171001

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions : (1) Attempt all questions.
(2) Each question carries equal marks.

1 Answer the following : (any **seven**) **14**

(1) Define classical probability.

(2) The probability of an impossible event is _____.

(3) Define Bernoulli distribution.

(4) What is the relation between Q.D., S.D. and M.D.

(5) The area under normal curve within its range $-\infty$ to ∞ is always _____ .

(6) Which continuous distribution, mean and variance of are equal?

(7) Define conditional probability.

(8) Write the types of Kurtosis.

(9) The word regression was first introduced by _____ in the study of hereditary.

(10) Write any four properties of coefficient of correlation (r).

2 Answer the following : (any **two**) **14**

(a) Explain box plot and scatter plot.

(b) Find Median, Mode, Q1, D7, P64, P22 of following data : 42, 28, 28, 57, 31, 23, 50, 34, 32, 37.

(c) Explain Poisson distribution and prove that its mean and variance are equal.

3 Answer the following : **14**

(a) Find the range, co-efficient of range, mean deviation from mean, median, mode, standard deviation and coefficient of variance for following data :

Class :	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Freq. :	6	14	10	8	1	3	8

(b) Prove that $\frac{q}{p^2}$ is variance of geometric distribution.

OR

3 Answer the following : **14**

(a) Explain Gamma distribution with parameter α and p.

(b) Find mean and variance of beta distribution of first kind.

4 Answer the following : (any **two**) **14**

(a) Find the variance of χ^2 distribution.

(b) Explain Test of skewness and types of skewness.

(c) Explain properties of a good measure of dispersion and define Q.D. and M.D.

5 Answer the following : (any **two**) **14**

(a) Define Beta Kind Two Distribution and find its Mean and Variance.

(b) Find the fitted regression line of x on y and y on x from the following data :

X :	21	22	23	24	25	26	27	28	29	30
Y :	17	19	19	20	23	24	27	26	28	27

(c) Write characteristics of normal distribution.

(d) Obtain the relations between r^{th} central moments and r^{th} raw moments.
