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Code No. 229

FACULTY OF SCIENCE

B.Sc. I-Semester (CBCS) Examination, December 2016

Subject : Statistics

Paper – I : Descriptive Statistics and Probability

Time : 3 Hours **Max. Marks: 80**

PART – A (5 x 4 = 20 Marks)
(Short Answer Type)
Note : Answer any FIVE of the following questions.

2 1 Explain the Sources of Secondary data.

2 2 Show that Bowley's coefficient of Skewness lies between ±1.

1 3 State the axioms of probability.

4 Show that if A and B are independent, $\overline{A}$ *and* $\overline{B}$ are also independent.

5 Define distribution function and state its properties.

6 Show that V(aX + b) = a^2V(X).

7 Explain the procedure for transformation of a random variable.

8 State and prove additive property of CGF.

PART – B (4 x 15 = 60 Marks)
(Essay Answer Type)
Note: Attempt ALL the questions.

9 (a) Distinguish between primary and secondary data. Explain the methods of collecting Primary data with advantages and disadvantages. (5+10)

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OR

(b) (i) Define Central and Non central moments. Derive the relationship between central moments in terms of a raw moments. (3+7)

(ii) In a certain distribution the first four moments about the point 5 are - 4, 2, -110 and 260 respectively. Find mean, variance and β_1.

10 (a) (i) For n events E_1, E_2, ...E_n. Prove that $P\left(\bigcap_{i=1}^{n} E_i\right) \geq \sum_{i=1}^{n} P(E_i) - (n-1)$.

(ii) A bag contains 50 tickets numbered 1,2 , ...50. Five tickets are drawn at random and arranged in as ascending order of magnitude. What is the probability that the third ticket is 30? (10+5)

OR

(b) (i) State and prove addition theorem of probability for n events. (10)

8 (ii) If $P(A \cup B) = \frac{5}{6}; P(A \cap B) = \frac{1}{3}$ and $P(\overline{B}) = \frac{1}{2}$. Prove that the events A and B are Independent. (5)

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