

# Veer Narmad South Gujarat University, surat

## S. Y. B. Sc

### Sub :- statistical methods (I.D)

Revised Syllabus effective from June-July-2009

**(1) Definations, limitations and functions of statistics**

**(2) Probability :-**

Defination:- Sample space, mutually exclusive events, Exhaustive events, equally likely events, independent events, Conditional probability. Addition theorem on probability for two and three events (with proof), simple examples based on above definations and theorems.

**(3) Random Variable :-**

Defination of random variable. Types of random variables. Properties of only discrete random variable. Defination of Expected value. Addition and product rule on expected value (with proof, only for discrete random variable) Defination of raw and central moments. Relation between central moments and Raw moments. Defination of moment generating function about origin and its properties (with proof) Simple examples based on all above topics.

**(4) Measures of Central tendency and dispersion :-**

Defination of mean, median, mode, harmonic mean, geometric mean, range Standard deviation, mean deviation from mean, quartiles and quartile deviation. Examples for above topics for ungrouped data, Discrete data and continous data.

**(5) Distributions :-**

Derivation of Binomial distribution and poisson distribution, Deviation of mean, Variance and moments generating function for both above distributions, Exampels based on above topics.

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### (6) Correlation and Regression :-

---> Definition of correlation and correlation Co-efficient. Explain scatter diagram, Karl Pearson's and rank correlation Co-efficient method. Examples for these methods.

---> Explain Regression and Regression lines. Properties of Regression Co-efficients (with proof), Examples for obtaining two regression lines and short questions for above topics.

### (7) Time Series :-

Meaning of time series, methods of finding trend (method of moving averages only 3 years and 5 years) Method of least square (fitting of only straight line)

### (8) Index number :-

---> Definition and meaning of index number Construction, uses and limitations of index number. Method of finding the index number by (fixed base method, Chain base method, cost of living index number method, Paasche's method, Laspeyres's method, Drobish and Bowley's method, Marshall-Edgeworth method, Fisher's ideal index number method). Time reversal test, factor reversal test. Examples based on above methods.

### BOOKS :-

- (i) Introduction to mathematical statistics : -P G. Hoel
- (ii) Introduction to mathematical statistics : Geon Gupta, Das Gupta
- (iii) Fundamental of Statistics : D.N. Elhance
- (iv) Advanced Practical Statistics : S.P. Gupta
- (v) Applied Statistics : Kapoor & Gupta
- (vi) Fundamentals of mathematical Statistics : S.G. Gupta & V.K. Kapoor
- (vii) Elements Statistical method : S.P. Gupta

(1) Two (Dr. J. J. Deani)  
(2) Stat (Prof. V. Paley)