F.Y.B.Sc. Sem-II

PAPER – 201

Skewness, Kurtosis, Probability

Unit:1 **Skewness and Kurtosis:** (40%)

➤ **Skewness:**

- Meaning of skewness,
- Symmetric and skew symmetric frequency distribution,
- Types of skewness,
- Test of skewness,
- Characteristics of a good measure of a skewness,
- Methods of determining skewness and the coefficient of skewness (i) Karl Pearson's coefficient of skewness, (ii) Bowley's coefficient of skewness (iii) skewness based on the moments.

➤ **Kurtosis:**

- Kurtosis of a curve,
- Types of Kurtosis curves,
- Measures of Kurtosis.

➤ Simple Numerical Problems.

Unit-2: **Probability - I:** (35%)

➤ Concepts in probability,

➤ Some important terms: Random experiment, Sample space, Event, Mutually exclusive events, Exhaustive events, Equally likely events, Favourable cases, Independent events.

➤ Classical and statistical definition of probability,

➤ Axiomatic approach to probability,

➤ Theorem based on above topics.

Unit-3: **Probability - II:** (25%)

➤ Conditional Probability and its related theorem,

➤ Bayes' theorem and its applications,

> ➤ Problems of above topics.

Books: (i)

(ii) Gupta S. C and Kapoor V.K. : Fundamentals of Mathematical
Statistics, S. Chand and Sons, New Delhi

(iii) Gupta S.P. (2006) : **Statistical Methods** - 34th Edition S. Chand
& Sons., New Delhi.

PAPER – 202

Univariate and Bivariate Probability functions and Moments

Unit-1:	**Random Variables, Probability functions and Mathematical expectation:**	(30%)

- ➢ Random variables: Discrete and Continuous,
- ➢ Probability functions: Probability mass function (p.m.f), Probability density function (p.d.f) and Cumulative distribution function (c.d.f.) with properties,
- ➢ Mathematical expectation,
- ➢ Problems of above topics.

Unit-2:	**Bivariate Random Variables:**	(30%)

- ➢ Bivariate Random Variables:
  - ▪ Joint, marginal and conditional p.m.f. and p.d.f. of two random variables,
  - ▪ Independence of two random variables,
  - ▪ Examples of above topics for only continuous random variables.
- ➢ Properties of mathematical expectation,
- ➢ Problems of above topics.

Unit-3:	**Moments, Measure of central tendency and dispersion for discrete & continuous random variables:**	(40%)

- ➢ Moments (of a random variable): Raw moments, Central moments, Factorial moments.
- ➢ Relations of above moments,
- ➢ Variance and its properties.
- ➢ Measure of Central tendency: Mean, Mode, Median, Harmonic mean and Geometric mean. Quartiles.
- ➢ Measure of Dispersion: Range, Quartile deviation, Mean

deviation, Standard deviation.

➢ Problems of above topics.

Books: (i)

(ii) Gupta S. C and Kapoor V.K. : Fundamentals of Mathematical
Statistics, S. Chand and Sons, New Delhi

(iii) Gupta S.P. (2006) : **Statistical Methods** - 34th Edition S. Chand
& Sons., New Delhi.

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VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

B.Sc. Semester – I

STATISTICS PRACTICAL PAPER – I

[Effective from June-2014]

Practical based on Statistics Paper I

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

B.Sc. Semester – I

STATISTICS PRACTICAL PAPER – II

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Practical based on Statistics Paper II

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

B.Sc. Semester – II

STATISTICS PRACTICAL PAPER – III

[Effective from June-2014]

Practical based on Statistics Paper III

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

B.Sc. Semester – II

STATISTICS PRACTICAL PAPER – IV

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Practical based on Statistics Paper IV

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