# ILMI A Quick Approach to Statistics

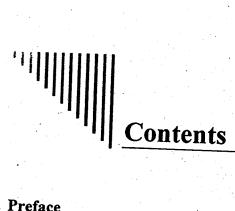
with Questions & Answers



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## Preface

Chapter 1	: Introductory Statistics		_
	Basic Statistics		. 1
2.2	Measures of Central Tendency		1
	Measures of Dispersion		·· 7
	Questions-Answers	•	9
	Exercises	. ·	11
			18
Chapter 2:	Basic Probability Theory		
•	Basics in Probability		23
	Some Probability Rules	•	23
• •	Counting Rules	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	28
	Overtions A		29
	Questions-Answers		31
	Exercises		34
Chanter 3.	Random Variables		4.
Chapter 5.	Nandom variables		41
	Questions-Answers		46
	Exercises		48
Chanton 4.	D:		
Chapter 4:	Discrete Probability Distribu	tions	49
	Questions-Answers		57
	Exercises	A Company	59
		The second	29
Chapter 5: (	Continuous Probability Distri	hutions	(2)
	Questions-Answers	Danons	63
*.*	Exercises		81
			85

Chapter 6:	Regression & Corre	lation	91
-	Regression		91
	Correlation		94
	Questions-Answers		95
	Exercises		101
Chapter 7: S	Sampling		105
	Basics of Sampling		105
	Sampling Techniques		107
•	Bias and Errors		111
	Questions-Answers		113
	Exercises		125
Chantan D. (	Sanainainna The Communication	•	40=
Chapter o: 8	Statistical Inference	-	127
	Questions-Answers	•	133
	Exercises	er en	140
Chapter 9: 1	Design and Analysis	of Experiment	143
	Questions-Answers		146
	Exercises		151
Chapter 10:	Analysis of Time Se	ries	153
	Questions-Answers		155
	Exercises		164
Chantan 11.	T., J., N.,		1.00
Chapter 11:	Index Numbers		167
	Questions-Answers		174
•	Exercises		177
Chapter 12:	Nonparametric Stat	istics	181
-	Questions-Answers		185
	Exercises		189
Answers to I	Exercises		195
Bibliography			201
ninnaki abii)	<b>/</b>		201
Subject Inde	<b>x</b>		203



## Chapter 1

## **Introductory Statistics**

### **Basic Statistics**

#### **Statistics**

Statistics is the collection of methods for planning experiments, obtaining data and then organizing, summarizing, presenting, analyzing, interpreting and drawing conclusions based on data.

#### Statistical Methods

Statistical methods are those ways that are used to collect, present, analyze, and interpret quantitative data.

#### **Type of Statistics**

There are two major types of Statistics: Descriptive Statistics and Inferential Statistics:

### Descriptive Statistics

It consists of methods for organizing and summarizing information in a presentable and effective way.

#### Inferential Statistics -

It consists of methods of drawing conclusions about a population based on information obtained from a sample of the population.

#### Data

A collection of facts from which conclusions may be drawn is referred as data.

### Observation

Any sort of recording of information is called observation.

### **Types of Data**

Generally, data can be classified by their nature and way of collection.

#### Types of Data (Nature)

#### Qualitative Data

Qualitative (or Categorical or Attribute) data can be separated into different categories that are distinguished by some non-numerical characteristics. For example, gender of person, blood type, and eye color etc.

#### Quantitative Data

Quantitative data consist of numbers representing counts or measurements such as number of patients in a hospital, ages of a group of persons, data about height and weight of individuals etc.

Quantitative data can be further classified into discrete and continuous data. All type of count data are referred as discrete data where measured data are referred as continuous data.

#### Discrete Data

Data obtained by categorizing subjects so that there is a distinct interval between any two possible values e.g., number of patients in a hospital and number of chairs in a room etc.

#### Continuous Data

Continuous data result from infinitely many possible values that can be associated with points on a continuous scale in such a way that there are no gaps or interruptions. For example, data about height and weight of individuals etc.

#### Types of Data (Collection)

#### Primary Data

The data collected directly from people and organizations via questionnaires or surveys before being analyzed to reach conclusions concerning the issues covered in the questionnaire or survey.

### Secondary Data

The data that have undergone any sort of treatment by statistical methods. In other words, the data that have already been assembled, having been collected for some other purpose, are referred as secondary data. Sources include census reports, trade publications, and subscription services.