

Stat & Maths 1998

5. Divident theories, divident policy in practices
6. Sources of company finance.

Reference Books:

1. *Essentials of managerial finance* - J. F. Weston & Eugene F. Brigham
2. *Financial Management.* - I. M. Pandey
3. *Financial Management Accounting* - S. N. Maheswari
4. *Financial Management & Policy* - James C. Vanhorne
5. *Financial Management - Theory and Practice.* - Prasanna Chandra
6. *Financial Management* - Khan & Jain

Subsidiary Sillabi

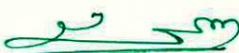
**Part III (Subsidiary) Statistics for Mathematics Main
Revised Syllabus (1998 Admissions)**

Paper I

1. A quick review of the topics : Meaning, scope and limitations of statistics - collection, classification and tabulation of stastical data - diagrams and graphs including Lorenz curve.
2. Measures of central tendency and dispersion - graphical Location of Partition values.
3. Moments - Sheppard's correction - Measures of Skewness and Kurtosis.
4. Curve Fitting and principle of Least squares : Liner, quadratic and exponential curves - simple linear regression and correlation (bivariate) rank correlation - repeated ranks - partial and multiple correlation (3 variables only)
5. Index Numbers - Meaning and uses - simple and weighted Index Numbers - construction of price and quantity indices - cost of Living Index Numbers - Bias - Base shifting - Splicing and deflating.
6. Random experiments-sample points-sample space, events-stastical regularity-frequency approach to probability and classical definition - probability as a measure - σ field - axiomatic approach - probability space - addition Theorem - compound and conditional probability - multiplication theroem - Independence of events. Bayes Theorm and Simple applications. (30 hrs)
7. Random variables and probability distributions Discrete - probability density function - Distribution function - Continues

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Case - p.d.f.as differential coefficient of distribution function - change of variables (15 hrs)

8. Bivariate distributions - Definition - Marginal and conditional density functions - distribution functions Continuous case - joint probability density function - change of variables in continuous case - Jacobian of transformations (15 hrs)

Topic wise distribution of questions (Statistics subsidiary)

Time 3 hrs

Maximum 60 Marks
(Each question carries six marks)

Sl.No.	Topic	Number of questions
1.	Central Tendency, Dispersion	1
2.	Moments skewness and Kurtosis	1
3.	Curve fitting, Correlation and Regression	2
	Partial and Multiple Correlation	1
4.	Index Numbers	1
5.	Probability	4
6.	Random Variables	3
7.	Bivariate distribution	2
	Total	15

Paper II

1. Mathematical Expectation - Moments absolute moments and cumulants. - Relation between central and raw moments - Moment generating functions characteristic functions - conditional expectation and variance. (15hrs)
2. Standard Distributions - discrete type : uniform, geometric, hypergeometric, Binomial and poisson continuous type - rectangular, triangular, exponential gamma $G(\infty, n)$ Beta distributions of First and Second Kind Normal Distributions, Log Normal and Pareto distributions

Note: In all distributions expect hypergeometric, Beta distribution, Lognormal and Pareto m.g. f. and c.f. to be included - in these distributions mean and variance will be sufficient (40hrs)

3. Law of large Numbers:- Tchebycheff's inequality - concept of convergence in probability - Bernoulli's law of large numbers - weak Law of Large numbers - central limit theorem (Lindeberg Levy form)- statement and proof - simple applications. (15 hrs)
4. Sampling distributions - derivations of distributions of mean and variance - samples from a normal population - derivations of χ^2 , t and F distributions - interrelations - use of tables of χ^2 , t and F (20 hrs)



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5. Estimation of parameters:
- Point Estimation - desirable properties - unbiasedness, Consistency, efficiency and sufficiency - condition for sufficiency (statement of Fisher - Neyman Factorisation theorem) - Crammer - Rao inequality (without proof) - Method of Estimation - M. L. Method - method of moments - method of minimum variance.
 - Interval estimation-confidence interval for mean and variance of normal populations confidence interval for population proportion (20 hrs)
6. Testing statistical hypothesis
- General principles - statement of the problem - two types of errors - critical region - significance level - power - Neyman Pearson Theorem for testing a simple hypothesis against a simple alternative (without proof) simple application.
 - Large sample tests - standard error - testing mean and equality of means - testing of proportions equality of proportions - χ^2 -test for goodness of fit association of attributes
 - small sample tests - tests based on Normal t, χ^2 and
 - Nonparametric tests - sign test - signed rank test (10 hrs)
7. Elements of sample surveys - general principle of sampling can be introduced -, Random sampling Estimates of mean and variance - simple random sampling with replacement and without replacement stratified and systematic sampling (10 hrs)

**Topic wise distribution of questions
Statistics (Sub) - Paper II**

Time 3 hrs

Max. 60 marks

(Each question carries six marks)

Sl. No.	Topic	No. of questions
1.	Expectation	2
2.	Standard distributions	3
3.	Law of Large numbers	2
4.	Sampling distributions	1
5.	Estimation of parameters	3
6.	Testing of hypothesis	3
7.	Sample survey	1
	Total	15

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Paper III Practical (written examination)

Time 3 hrs .

Maximum marks: 60

(Each question carries 10 marks)

Use of calculator and tables allowed

Topic wise distribution of questions

Sl.No.	Topic	No. of questions
1.	Descriptive measures including skewness and Kurtosis	1
2.	Curve Fitting, Correlation and regression partial and multiple correlation	2
3.	Standard distributions and sampling distributions	2
4.	Estimation	1
5.	Testing of hypothesis	2
6.	Index Numbers	1
	Total	9

Practical record - 20 marks

Topic wise Distribution of the Record work

Sl. No.	Topic	No of questions answered
1.	(a) Questionnaire	1
	(b) Digrams and graphics (Lorenz curve)	5
2.	Measures of central Tendency and dispersions	6
3.	Moments, skewness and kurtosis	5
4.	Curve fitting	5
5.	Correlation and regression	4
6.	Partial and multiple correlation	2
7.	Probability	10
8.	Random variables and probability density functions	6
9.	Bivariate distributions	4
10.	Index numbers	5
11.	Mathematical expectations	7
12.	Standard distributions	10
13.	Sampling distributions	5
14.	Law of large numbers	5
15.	Estimation of parameters	6
16.	Testing of statistical hypothesis	10
17.	Sample survey	4



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