

M.Com. Part II
Quantitative Techniques & Research Methodology
[effective From , June - 2007]

Objective :

This course helps students to make them familiar with art of using different research methods and techniques . It also enables students, irrespective of their discipline, in developing the most appropriate methodology for their research studies.

Unit - I

- (A) **Introduction to research methodology :** meaning, Objectives, motivation in research, types, approaches , importance, research methodology, scientific research , process, criteria for good research, problems encountered, *Defining research problem, Developing research proposal, Research Design:* meaning, need, features, important concepts (10%)
- (B) **Experimental designs:** basic principles - randomization, replication, local control; Informal experimental design - before and after without control, after only with control, before & after with control; Formal experimental designs - completely randomized, randomized block, latin square ;
Sampling design: implications, steps criteria for sampling procedure, characteristic of good sample design, different types of sample design - (a) Probability sampling like simple random, systematic random, stratified, cluster (b) Non probability sampling like quota, judgmental, convenience (15%)

Unit - II

- (A) **Measurement & scaling techniques:** classification of measurement scales, sources of errors, tests of sound measurement, techniques of developing measurement tools, scaling procedure, classification, important scaling techniques - rating scales, differential scales, summated scales, cumulative scales, multidimensional scaling
Data collection through Questionnaires : advantages and disadvantages of mail, & personal questionnaire, essential of good questionnaire, guidelines for constructing questionnaire, difference between survey and experiment (13%)
- (B) **Sampling fundamentals :** need, some definitions-population, sampling frame, sampling design, statistics and parameter, sampling error, precision, confidence level and significance level; sampling distribution, sampling theory, standard error, estimation for population mean and proportion, sample size determination using precision rate, confidence interval & Bayesian statistics, Ethical issues in research, Writing research report and presentation of research report, Role of computer in research, general concept of computer and computer technology, computer system, areas of computer applications (12%)

Unit - III Testing Hypothesis

- (A) **Large Sample Test:** Definition of hypothesis, basic concepts - null hypothesis and alternative hypothesis, the level of significance, type I & type II errors, two tailed and one tailed test, power of test , testing of mean, testing of differences between two means, testing of proportion of differences between two proportion limitations of hypothesis testing (13%)
- (B) **Small Sample Test :** idea of degree of freedom, test significance based upon t and F statistic- testing of mean, testing of difference between two means, testing of equality of variances, chi-square test (12%)

Unit - IV

- (A) **Chi-square Test for large samples:** Definition of chi-square, limitations of chi-square test, chi-square test as a test of goodness of fit and as a test of independence, Yate's correction and its application, *Analysis of Variance (ANOVA) :* Concept, one way ANOVA, ANOVA in test in latin square design (15%)
- (B) **Non Parametric Test (Distribution Free Tests) :** Idea of non Parametric tests, various tests - Sign test, Fisher -Irwin test, McNemer test, Wilcoxon matched pair test, Wilcoxon-Man-Ehitney test, One Sample Run test (10%)

Structure of Question Paper**Total Marks:-100
Time:- 3 hours.**

Question No.	Unit	Marks	Note
1 (A) or (A)	1 (A)	10	Theory
1 (B) or (B)	1 (B)	07	Theory
1 (C) or (C)	1 (B)	08	Theory
2 (A) or (A)	2 (A)	13	Theory
2 (B) or (B)	2 (B)	12	Theory
3 (A) or (A)	3 (A)	13	Theory & Example
3 (B) or (B)	3 (B)	12	Theory & Example
4 (A) or (A)	4 (A)	08	Theory &/or Example
4 (B) or (B)	4 (A)	07	Example
4 (C) or 4 (C)	4 (B)	10	Theory &/or Example

References:

1. Research Methodology by C.R. Kothari, 2nd edition (2004), New Age International Publication, New Delhi.
2. Research Methodology by G.R. Basotia & K.K. Sharma, 1st edition (1999), Mangal Deep Publication, Jaipur.
3. Research Methodology by D.K. Bhattacharyya, 1st edition (2003), Excel Books Publication, New Delhi.
4. Research Methods for Management by Dr. S. Shajahan, 2nd edition (2004), Jaico Publishing House, Mumbai.
5. Marketing Research Concept & Practices in India by S. Shajahan, 1st edition (2005), McMillan India Publication, New Delhi.
6. Marketing Research by Luck 7 Rubin, 7th edition, Prentice Hall of India Publication, New Delhi.
7. Introduction to mathematical Statistics by S.P. Gupta.
8. Business Statistics by Sancheti & Kapoor, Sultan Chand & Sons, New Delhi.