



CII Institute of Logistics

Post Graduate Diploma in Supply Chain Management

Semester-end Examination June 2008

RESEARCH METHODOLOGY

Time : Three Hours

Marks : 100

Part A

Answer all questions (10 x 1 = 10 Marks)

1. A complete enumeration of all the items in the population is known as
 - a. Random Sampling
 - b. Census Enquiry
 - c. Mailing Questionnaire
 - d. Convenient Sampling
2. A concept which can take on different quantitative values is called a
 - a. Variable
 - b. Constant
 - c. Parameter
 - d. Factor
3. A definite plan for obtaining a sample from a given population is called
 - a. Research Design
 - b. Sample Design
 - c. Empirical Research
 - d. Systematic Sampling
4. The term ----- refers to an investigation in which a factor or variable under test is isolated and its effects measured
 - a. Randomization
 - b. Control
 - c. Experiment
 - d. Replication
5. The population is said to be ----- if it consists of a fixed number of elements so that it is possible to enumerate it in its totality
 - a. Infinite
 - b. Finite
 - c. Dense
 - d. Universal
6. Those data which are collected afresh and for the first time for a study are called
 - a. Primary Data
 - b. Secondary Data
 - c. Raw Data
 - d. First Data
7. The standard deviation of sampling distribution of a statistic is known as
 - a. Type II Error
 - b. Standard Error
 - c. Coefficient of Variation
 - d. Coefficient of Skewness
8. Rejecting a Null Hypothesis when it is true is called
 - a. Sampling Error
 - b. Alternate Hypothesis
 - c. Type II Error
 - d. Type I Error
9. Chi Square test is a
 - a. Non-parametric test
 - b. Parametric test
 - c. ANOVA
 - d. Psychometric test
10. Stratified sampling is a method of
 - a. Simple random sampling
 - b. Complex random sampling
 - c. Cluster sampling
 - d. Area sampling

Part B

Answer any three (3 x 15 = 45)

- Describe in brief the layout of a research report, covering all relevant points
- What is research design? Discuss the basis of stratification to be employed in sampling public opinion on inflation.
- Write short notes on
 - Semantic differential scale
 - Multi dimensional scaling
 - Discriminant Analysis
- Briefly describe different scales for measuring attitudes of people
- Discuss the merits and demerits of collection of data through questionnaire

Part C

Answer any three (3 x 15 = 45)

- A certain number of population is divided into five strata so that $N_1=2000$ $N_2=2000$ $N_3=1800$ $N_4=1700$ and $N_5=2500$. Respective standard deviations are $\sigma_1=1.6$ $\sigma_2=2.0$ $\sigma_3=4.4$ $\sigma_4=4.8$ and $\sigma_5=6.0$ and further the expected sampling cost in the first two strata is Rs. 4 per interview and in the remaining three strata the sampling cost is Rs.6 per interview. How should a sample size $n=226$ be allocated to five strata if we adopt proportionate sampling design. If we adopt disproportionate sampling design considering (i) only the difference in stratum variability (ii) differences in stratum variability as well as the differences in stratum sampling costs.
- The annual incomes of 900 salesmen employed by Hi-Fi Corporation is known to be approximately normally distributed. If the corporation wants to be 95% confident that that the true mean of this year's salesmen's incomes does not differ by more than 2% of the last year's mean income

of Rs.12,000, what sample size would be required, assuming the population standard deviation to be Rs.1500

- Workout the first two centroid factors as well as first two principal components from the correlation matrix R, relating to six variables

		Variables					
		1	2	3	4	5	6
Variables	1	1.00	0.55	0.43	0.32	0.28	0.36
	2		1.00	0.50	0.25	0.31	0.32
	3			1.00	0.39	0.25	0.33
	4				1.00	0.43	0.49
	5					1.00	0.44
	6						1.00

- Set up ANOVA table for the following information relating to three drugs testing to judge the effectiveness in reducing blood pressure for three different groups of people :

Group	Drug		
	X	Y	Z
A	14	10	11
	15	9	11
B	12	7	10
	11	8	11
C	10	11	8
	11	11	7

Answer the following questions taking a significant level of 5%
Do the drugs act differently? Are the different groups of people affected differently? Is the interaction term significant?
