CII Institute of Logistics

Post Graduate Diploma in Supply Chain Management

Semester-end Examination June 2008

QUANTITATIVE TECHNIQUES

Time : Three Hours Marks : 100

Part A

Answer all questions (10 x 1 = 10 Marks)

1. Regression coefficient is always less than one True / False

2. When population is heterogeneous with respect to a characteristic, stratified random sampling is more appropriate True/ False

3. The cofactor matrix is the set of numbers that remain after a given row and column are removed from a matrix True/ False

4. Histogram is the graphical representation of frequency distribution True/ False

5. Quantitative models always produce a precise accurate solution True/ False

6. The value that has the maximum frequency in the data set is called ________

7. If one event is not affected by the outcome of another event, the two events are said to be ______________

8. A curve drawn for cumulative frequency distribution is called __________

9. The correlation coefficient must be between ________________

10. The equally likely criteria in decision making is called _________________

Part B

Answer any three (3 x 15 = 45)

1. Explain the different types of Price index numbers and how we can construct them
2. Explain the purpose and methods of classification of data giving suitable examples
3. From the following data obtain the correlation coefficient & two regression equations.

Sales:	81	87	98	101	57	131	90
Purchase:	61	65	52	50	44	99	72

4. Explain the principles of DBMS

Part C

Answer all questions (3 x 15 = 45)

1. Calculate Weighted Relative Price index no.

Commodity	Base year Value(Rs)	current year Price (Rs)	current year Quantity (Rs)
Bread	300	Rs.10/- per loaf	500
Milk	500	Rs. 15/- per litre	600
Butter	240	Rs. 100/- per Kg	4

2. A sub committee of 6 members is to be formed out of a group of 7 men and 4 women. What is the probability that the sub committee will consist of (i) exactly 2 women (ii) at least 2 women.

3. Recently many companies have started using inventory turnover ratio as an important measure for supply chain performance. It is defined as the ratio of Annual sales to average inventory level. The definition implies that an increase in inventory turnover leads to a decrease in average inventory levels. For instance, Retailing powerhouse Wal- Mart has the highest turnover ratio of any discount retailer. This suggests that Wal-Mart has a higher level of liquidity, smaller risk of obsolescence, and reduced investment in inventory. Of course, a low level of inventory in itself is not always appropriate since it increases the risk of lost sales.

A recent survey of industry practices gives the following details:

Inventory turnover ratio for different manufacturers:

Industry	Upper quartile(Q1)	Median	Lower quartile(Q3)
Electronic components	8.1	4.9	3.3
Computers	22.7	7.0	2.7
Audio and Video	6.3	3.9	2.5
Paper mills	11.7	8.0	5.5
Industrial chemicals	14.1	6.4	4.2
Bakery products	39.7	23.0	12.6
Publishing and Printing	7.2	2.8	1.5

Comment on the performance of these industries in terms of inventory turnover ratio. Use of statistics and calculations are must.

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