

**MASTER OF BUSINESS  
ADMINISTRATION RETAIL SERVICES  
(MBARS)**

**Term-End Examination**

**June, 2013**

**MRS-011 : QUANTITATIVE TECHNIQUES**

*Time : 3 hours*

*Maximum Marks : 100*

*Note : Attempt any five questions. All questions carry equal marks.*

1. (a) Distinguish between primary and secondary data, and explain various sources of primary and secondary data. **10**
- (b) Explain different ways of data classification. What are the requisites of ideal classification ? **10**
2. (a) Define the following concepts : **10**
  - (i) Histogram
  - (ii) Frequency polygon
  - (iii) Ogive
- (b) Prove that the total area of the rectangles in a histogram is equal to the total area bounded by the corresponding frequency polygon and X axis. **10**

3. (a) In a sample study about coffee drinking habits in two towns the following information was recorded : 10

**Town A :** Females were 40%, total coffee drinkers were 45% and male non-coffee drinkers were 20%.

**Town B :** Male were 55%, male non coffee drinkers were 30% and female coffee drinkers were 15%.

Represent the data in the tabular form.

- (b) If  $A = \{0, 1, 2, 3\}$ ,  $B = \{7, 9, 11, 13\}$  and a rule  $f$  from  $A$  to  $B$  is defined by function  $f(x) = 2x + 7 \quad \forall x \in A$ , then prove that  $f$  is one-one and onto. 10

4. (a) Distinguish between : 10

(i) Geometric and Harmonic Mean

(ii) Quartiles and deciles

- (b) Find mean, median and mode from the following distribution : 10

Class :	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Frequency :	6	10	16	14	10	5	2

5. (a) Calculate Karl Pearson's coefficient of correlation between  $x$  and  $y$  for the following data : 10  
 $N = 12$ ,  $\Sigma x = 120$ ,  $\Sigma y = 130$ ,  $\Sigma(x - 8)^2 = 50$ ,  
 $\Sigma(y - 10)^2 = 200$  and  $\Sigma(x - 8)(y - 10) = 50$ .
- (b) Explain the concurrent deviation method to finding correlation between two variables. 10
6. (a) Using the method of least squares, find the straight line that best fits the following data : 10  
 $x$  : 1 2 3 4 5  
 $y$  : 14 27 40 55 68
- (b) Differentiate between the following : 10  
 (i) Type I error and type II error.  
 (ii) Judgement sampling and random sampling
7. (a) What is a time series ? Explain the objectives of the analysis of a time series. 10
- (b) Compute : 10  
 (i) Laspeyres  
 (ii) Paasehes and  
 (iii) Fisher's quantity index numbers from the following data :

Article	2008		2010	
	Price	Quantity	Price	Quantity
A	5	10	4	12
B	8	6	7	7
C	6	3	5	4

8. (a) What is the major purpose of hypothesis testing ? Explain various steps involved in hypothesis testing. 10
- (b) A die is thrown 270 times and the results of these throws are given below : 10

No. appeared on die	1	2	3	4	5	6
Frequency	40	32	29	59	57	59

Test whether the die is biased or not.

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