

No. of Printed Pages : 4

MRS-011

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

Term-End Examination

December, 2014

MRS-011 : QUANTITATIVE TECHNIQUES

Time : 3 hours

Maximum Marks : 100

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

1. (a) Discuss the meaning, scope and limitations of statistics. 10
- (b) Explain histogram, frequency polygon and frequency curve. Represent the following data by histogram and frequency polygon : 10

Class	0-5	5-10	10-15	15-20	20-25	25-30
Frequency	3	5	9	20	15	6

2. Give an illustration each of the type of data for which you would expect the frequency to be 20
- (i) Fairly Symmetrical
- (ii) Positive Skewed
- (iii) Negative Skewed
- (iv) J Shaped
- (v) U Shaped

3. (a) In an examination, the average grade of all students in class A is 68.4 and that for students in class B is 71.2. If the average of both classes combined is 70, find the ratio of the number of students in class A to the number in class B. 10
- (b) Calculate Median, lower quartile and upper quartile for the following data : 10

Class	0-4	4-6	6-8	8-12	12-18	18-20
Frequency	4	6	8	12	7	2

4. (a) Ten competitors in a beauty contest were ranked by three Judges in the following order :

I st Judge	II nd Judge	III rd Judge
1	3	6
6	5	4
5	8	9
10	4	8
3	7	1
2	10	2
4	2	3
9	1	10
7	6	5
8	9	7

Use the method of rank correlation to determine which pair of Judges has the nearest approach to common taste in beauty. 10

- (b) Explain the principle of least squares used for determining the linear regression. 10

5. (a) What is time series ? Describe the components of time series. 10
- (b) Construct Index numbers of price of 2011 from the following data by 10
- (i) Laspeyres' Method
- (ii) Fisher's Method

Commodity	Base year 2008		Current year 2011	
	Price	Quantity	Price	Quantity
A	10	30	12	50
B	8	15	10	25
C	6	20	6	30
D	4	10	6	20

6. (a) A bag contains 30 balls numbered from 1 to 30. One ball is drawn at random. Find the probability that number of the drawn ball is a multiple of 4 or 9. 10
- (b) Define the following terms as used in Probability Theory with an example :
- (i) Equally likely events
- (ii) Mutually exclusive events
- (iii) Independent and dependent event 10

7. (a) A college conducts both day and night classes intended to be identical. A sample of 100 day students yields examination result as

$$\bar{x}_1 = 72.4, \sigma_1 = 14.8$$

A sample of 200 night students yields examination results as under :

$$\bar{x}_2 = 73.9, \sigma_2 = 17.9$$

Are the two means statistically equal to 10% level ?

10

- (b) What do you mean by Sampling ? Discuss the classification of Sampling methods.

10

8. (a) Write the parameters of the following distributions :

10

- (i) t distribution
 (ii) χ^2 distribution and
 (iii) F distribution

- (b) Distinguish between the following :

10

- (i) H_0 and H_1 in testing of hypothesis
 (ii) Simple random sampling and Purposive sampling
 (iii) one tailed and two tailed tests