MRS-011

MASTER OF BUSINESS ADMINISTRATION RETAIL SERVICES (MBARS)
Term-End Examination
December, 2014

ᑎᑎᴦᑎᔎ

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	IInd Judge	IIIrd 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