

Roll No.

Total No. of Pages : 03

Total No. of Questions : 15

MBA / MBA(IB) (2012 & Onward) (Sem.-1)

QUANTITATIVE TECHNIQUES

Subject Code : MBA-104

Paper ID : [C0104]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A** contains SIX questions carrying FIVE marks each and students has to attempt any FOUR questions.
2. **SECTIONS-B** consists of FOUR Subsections : Units-I, II, III & IV. Each Subsection contains TWO questions each carrying EIGHT marks each and student has to attempt any ONE question from each Subsection.
3. **SECTION-C** is **COMPULSORY** and consist of ONE Case Study carrying EIGHT marks.

SECTION-A

1. Explain the Classification and Tabulation of data.
2. Differentiate between Probabilistic and Non-Probabilistic sampling.
3. Discuss the various errors in Hypothesis Testing. Also explain the Significance Level Confidence Level and Degrees of Freedom.
4. What is the significance of Karl Pearson's coefficient of correlation? How is it different from Spearman's Coefficient of Correlation?
5. Explain the relevance of selecting Base Period in Index Numbers. Comment on the components of Time Series Analysis.
6. Differentiate between the Binomial and Poisson Probability Distributions.

SECTION-B

UNIT-I

7. a) Discuss the application of statistics in Business Research.
b) Explain the different sources of collection of data with examples.
8. From the analysis of monthly wages paid to employees in two service organizations X & Y, the following results were obtained. Which organization pays a larger amount as monthly wages? In which organization is there greater variability in individual wages of all the wage earners taken together?

	Organization X	Organization Y
Number of wage earners	550	650
Average monthly wages	Rs. 5,000	Rs. 4,500
Variance of the distribution of wages	900	1600

UNIT-II

9. 12 students were given intensive coaching and 5 tests were conducted in a month. The scores of tests 1 and 5 are given below. Can it be inferred that the coaching has benefitted the students? (Assume 5% significance level)

Student	1	2	3	4	5	6	7	8	9	10	11	12
Marks in 1 st test	50	42	51	26	35	42	60	41	70	55	62	38
Marks in 5 th test	62	40	61	35	30	52	68	51	84	63	72	50

10. The following represents the number of units of production per day turned out by four different workers using five different machines. On the basis of the information, can it be concluded that
- the mean productivity is the same for different machines?
 - the workers do not differ with regard to productivity?

Machine Type						
Worker	A	B	C	D	E	Total
1	4	5	3	7	6	25
2	5	7	7	4	5	28
3	7	6	7	8	8	36
4	3	5	4	8	2	22
Total	19	23	21	27	21	111

UNIT-III

11.
 - Discuss the uses and significance of regression coefficient.
 - What are index numbers and how are they useful in business management? Discuss the various types of Index numbers.
12. Family income and its percentage spent on food in the case of 100 families gave the following frequency distribution. Calculate the coefficient of correlation and comment on the value obtained.

Food (%)	Family Income (Rs '000s)				
	5-10	10-15	15-20	20-25	25-30
10-15	----	----	----	3	7
15-20	----	4	9	4	3
20-25	7	6	12	5	----
25-30	3	10	19	8	----

UNIT-IV

13. a) Discuss the importance of Time Series Analysis.
- b) What are various components and methods of Time Series analysis?
14. The income of a group of 10,000 persons was found to be normally distributed with mean Rs 1750 p.m. and standard deviation Rs 50. Show that, in this group 95% persons had income exceeding Rs 1668 and only 5% had income exceeding Rs 1832. Also find out what was the lowest income among the richest 100?

SECTION C

15. **Case Study :**

H.L.L. India Ltd is manufacturing a new cosmetic powder for the Indian market. It is specially designed for the North Indian market where the moisture content (humidity) is usually quite high in summer months. The company has decided to conduct experiments so as to determine the moisture content in the powder, and therefore 6 consignments have been taken as samples. Four experiments are to be conducted after taking a sample from each of the 6 consignments. Four observers have been appointed for the task and their assessments were found to be as follows.

Observers	Consignments					
	1	2	3	4	5	6
A	9	10	9	10	11	11
B	12	11	9	11	10	10
C	11	10	10	12	11	10
D	12	13	11	14	12	10

You as a manager are required to analyze the given data, and determine & subsequently discuss as to whether :

Questions :

- a) The six consignments differ with respect to their moisture content?
- b) The inspection results of the four observers are at variance with reference to each other?