

Roll No.

--	--	--	--	--	--	--	--	--	--	--	--

Total No. of Pages : 04

Total No. of Questions : 15

MBA/MBA(IB) (Sem.-1st)

QUANTITATIVE TECHNIQUES

Subject Code : MBA-104 (Batch-2012)

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. Discuss the significance of measures of dispersion.
2. Differentiate between probabilistic and non-probabilistic sampling.
3. Discuss the steps in Hypothesis Testing.
4. What are the properties of the correlation coefficient? How is it related to the regression coefficients?
5. Explain the relevance of selecting Base Period in Index Numbers. Comment on the components of Time Series Analysis.
6. Discuss the additive and multiplicative laws of probability. Further explain the Baye's Theorem of Probability.

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.

OR

8. A prospective buyer tests bursting pressure of samples of polythene bags received from two manufacturers A and B. The tests reveal the following results. Which manufacturer's bags have the higher average bursting pressure? Which of them is more uniform in bursting pressure?

Bursting Pressure	5-10	10-15	15-20	20-25	25-30
Number of Bags of Type A	2	9	29	54	6
Number of Bags of Type B	9	15	30	32	14

UNIT - II

9. The HRD manager wishes to see if there is any significant utility of a training program in the ability of trainees in his company. The trainees take aptitude tests before and after the training program. The scores recorded are provided below and on the basis of that, can the manager conclude whether the program has been useful or not? (Assume 5% significance level)

Trainee	A	B	C	D	E	F	G	H	I
Score Before Training	75	70	46	68	68	43	55	68	77
Score After Training	70	77	57	60	79	64	55	77	76

OR

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. a) Discuss the uses and significance of regression coefficient.
b) What are index numbers and how are they useful in business management?
Discuss the various types of Index numbers.

OR

12. A company wants to assess the impact of R&D expenditure on annual profits. The following table gives the information for last 8 years. On the basis of this data, estimate the regression equation and thereby predict the annual profit for the year 2012 for an allocated sum of Rs 15,000 as R&D expenditure.

Year	R&D expenditure ('000 Rs)	Annual Profits ('000 Rs)
2004	9	45
2005	7	42
2006	5	41
2007	10	60
2008	4	30
2009	5	34
2010	3	25
2011	2	20

UNIT - IV

13. a) Discuss the importance of Time Series Analysis.
b) What are various components and methods of Time Series analysis?

OR

14. A random sample of $n=25$ was selected from a normally distributed population. The population mean is 106 and standard deviation is 12.
a) Find the standard error of the sampling distribution.
b) What is the probability that the sample mean is greater than 100?
c) What is the probability that the sample mean will be ± 4 from the population mean?

SECTION-C

Case Analysis

15. 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:

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