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Total No. of Pages : 03

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. Explain skewness and kurtosis by emphasizing on measures of shape of data.
2. Differentiate between sample and population variance and standard deviation.
3. Enumerate the assumptions of Binomial and Poisson distributions. Identify the type of statistical experiments that can be described by binomial and Poisson distribution.
4. Give an example of how quota sampling could be used to conduct sampling by a company test marketing a new personal computer.
5. Explain the need of hypothesis testing and logic of creating null and alternate hypothesis.
6. Interpret slope, intercept and standard error of estimate in a simple regression line.

SECTION - B

UNIT-I

7. Give an example of descriptive statistics in recorded music industry. How inferential statistics can be used in this industry? Compare the two examples. What makes them different?

8. Distinguish between measures of central tendency, measures of variability, measures of shape and measures of association.

UNIT-II

9. Decide when and how to use probability sampling techniques by discussing their statistical and economical efficiency.
10. A researcher conducted survey for three brands of jeans and wants to determine whether sales of jeans is independent of age. The number of responses for each brand in different age category is given in following table. Determine whether brand preference is independent of age group. Use $\alpha=0.05$

	Brand 1	Brand 2	Brand 3
15 to 25	65	75	22
26 to 35	60	40	64
36 to 45	45	52	50
46 to 55	55	65	60

UNIT-III

11. Develop a regression model to predict the impact of advertisements on sales. Also calculate and interpret standard error of estimate.

Months	Ad expense (Rs. '000)	Sales (Rs. '000)	Months	Ad expense (Rs. '000)	Sales (Rs. '000)
1.	92	930	7.	104	1,150
2.	94	900	8.	105	1,120
3.	97	1,020	9.	105	1,130
4.	98	990	10.	107	1,200
5.	100	1,100	11.	107	1,250
6.	102	1,050	12.	110	1,220

12. Describe various ways of computing index numbers. Also, explain the application of each type of index numbers.

UNIT-IV

13. A placement company has conducted a written test to recruit people in a software company. Assume that the test marks are normally distributed with mean 120 and standard deviation 50. Calculate probability of randomly obtaining score :
- (a) greater than 200 in the test
 - (b) that is 180 or less
 - (c) less than 80
 - (d) between 70 to 170
14. What is time-series data? What are four possible components of time-series data and their applications?

SECTION-C

CASE STUDY

15. Bureau of labor statistics wants to use statistics to determine whether there is difference between two countries on some measure of labor or between time periods for one country. The bureau reports that hourly compensation rates in US dollars for manufacturing production workers in country 'A' in 1995 and 2004 were \$25.96 and \$28.29 respectively. Hourly compensation rates for country 'B' over same period of time were \$19.26 in 1995 and \$23.89 in 2004. According to the survey by labor department the hours actually worked by employees per week in country A in 1995 were 36.1 and were 35.5 in 2004. For country B the figures were 37.1 in 1995 and 35.9 in 2004.
- i. How will you help the department statistically to find whether the hourly labor cost in country A in 2004 was significantly higher than the 2004 hourly labor cost in country B based on given figures?
 - ii. How will you help the department statistically to find whether the difference between the two countries' average workweek is significant or not?