No. of Printed Pages : 4

MCT-053

00220

EXECUTIVE MBA (EXMBA)

Term-End Examination

December, 2010

MCT-053 : QUANTITATIVE TECHNIQUES

Time : 3 hours *Maximum Marks : 100*

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

1. (a) Discuss applications of statistics in business management. **10**

   (b) Explain different ways of data classification. What are the requisites of ideal classification ? **10**

2. (a) If class midpoints in a frequency distribution of the ages of A group of persons are : 25, 32, 39, 46, 53 and 60. **10**

   Find :

   (i) The size of the class - interval

   (ii) The class boundaries

   (iii) The class limits, assuming that the age quoted is the age completed on the last birthdays

(b) Calculate the mean, median and mode for the following data pertaining to marks in Physics. There are 80 students in class and test is of 140 marks. **10**

Marks more than	0	20	40	60	80	100	120
No. of Students	80	76	50	28	18	9	3

3. (a) A study of 100 engineering companies gives the following information. **10**

Profit (In Cr)	0-10	10-20	20-30	30-40	40-50	50-60
No. of Companies	8	12	20	30	20	10

Calculate the standard deviation of the profit earned. Also calculate the variance.

(b) State and Explain Chebyshev's theorem. **10**

4. (a) Explain different types and uses of Index Numbers. **10**

(b) For the following data, calculate the price index number of 1999 with 1998 as base year using Laspeyve's Method and Paasche's Method. **10**

Commodity	1998		1999	
	Price	Quantity	Price	Quantity
A	20	8	40	6
B	50	10	60	5
C	40	15	50	15
D	20	20	20	25

5. (a) The incidence of occupational disease in an Industry is such that the workers have 20 percent chance of suffering from it. What is the probability that out of six workers 4 or more will come in contact of the disease ? 10

(b) Explain what you understand by the term probability ? Discuss its importance in business decision making. 10

6. (a) A wholesale distributor of fertiliser products finds that annual demand for one type of fertiliser is normally distributed with a mean of 120 tons and standard deviation of 16 tons. If he orders only once a year, what quantity should be ordered to ensure that there is only a 5% chance of running short ? 10

(b) Explain characteristics of Normal probability distribution and Poisson probability distribution. 10

7. (a) Explain the properties of expected value and variance of a random variable. 10

(b) A lottery sells 10,000 Tickets at Rs. 1 per ticket and prize of Rs. 5000/- will be given to winner of first draw. Suppose you have bought a ticket, how much should you expect to win ? 10

8. (a) Explain the concept of regression and point out to usefulness in dealing with business problems. **10**

(b) The coefficient of correlation between the ages of husbands and wives in a community was found to be $+0.8$, the average age of husbands was 25 years and that of wives was 22 years. Their standard deviation was 4 and 5 respectively. Find with the help of regression equations. **10**

(i) the expected age of husband when wife's age is 16 years and

(ii) expected age of wife when husbands age is 33 years.