



MBA 105

I Semester M.B.A. (Master of Business Administration)

Examination, August 2011

QUANTITATIVE TECHNIQUES

Time : 3 Hours

Max. Marks : 80

SECTION – A

(5×6=30)

(All questions are **compulsory**. Each question carries **equal** marks.)

1. Define sampling and its methods. Explain the different methods of sampling.
2. The following table gives the distribution of marks obtained by 90 students in an examination :

| Class | 0 – 10 | 10 – 20 | 20 – 30 | 30 – 40 | 40 – 50 | 50 – 60 |
|-----------|--------|---------|---------|---------|---------|---------|
| Frequency | 4 | 10 | 20 | 35 | 15 | 6 |

Calculate the coefficient of variation.

3. What is a questionnaire ? How does it differ from a blank form ?
4. What is normal distribution ? Explain its properties.
5. What do you understand by time series analysis ? Explain the various factors affecting in the time series with suitable examples.

SECTION – B

(10×5=50)

(Attempt **any five** questions. Each question carries **equal** marks.)

6. Explain the following :
 - a) Probable error
 - b) Correlation coefficient
 - c) Rank correlation
 - d) Scatter diagram.
7. It is given that 2% of the screws manufactured by a company are defective. Use Poisson distribution to find the probability that a packet of 100 screws contains :
 - i) No defectives screws
 - ii) Two or more defectives.

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8. What are the measures of dispersion ? Discuss four important measures of dispersion.
9. State and explain the :
 a) Random sampling
 b) Sampling errors
 c) Grouped frequency distributions.
10. If the regression lines are $3Y + 9X = 46$ and $3X + 12Y = 19$, determine which one of these is the regression in line of Y on X and which is that of X on Y. Also find the means correlation coefficient and ratio of variances of X and Y.

11. A computer while calculating the correlation coefficient between two variables X and Y, obtain the following constants :
 $N = 30$, $\sum X = 120$, $\sum X^2 = 600$, $\sum Y = 90$, $\sum Y^2 = 250$, $\sum XY = 356$. It was however, later discovered at the time of checking that it had copied down two pairs of observations as :

| X | Y |
|----|----|
| 8 | 10 |
| 10 | 7 |

While the correct values were :

| X | Y |
|----|----|
| 8 | 12 |
| 10 | 8 |

Obtain the correct value of the correlation coefficient between X and Y.

12. Calculate the trend values using 3-yearly moving average from the following data :

| Year | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 |
|------------------|------|------|------|------|------|------|------|------|------|------|
| Sales (in Lakhs) | 7 | 8 | 9 | 11 | 10 | 12 | 8 | 6 | 5 | 10 |

13. A) Two dice are tossed. Find the probability that the sum of dots on the faces that turn up is
 i) sum is 8
 ii) sum is 11
 iii) greater than 6
 iv) greater than 5 and less than 10.
- B) State and prove Baye's theorem.
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