# 2018

## M B A

### 1st Semester Examination

### QUANTITATIVE TECHNIQUES

**PAPER—MBA 103**

*Full Marks :* 100

*Time :* 3 Hours

*The figures in the right-hand margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

*Illustrate the answers wherever necessary.*

*Answer all questions.*

1. Answer any *eight* questions : 8×5

   (a) Mention any three limitations of statistics.

   (b) State the additive theorem of probability.

   (c) When binomial distribution tends to poisson distribution.

   (d) In which situation mean medium and mode value will be exactly equal.

(e) What do you mean by cost of living index.

(f) Distinguish between correlation coefficient and regression coefficient.

(g) $R^2 = 0.70$ in a rogression equation. What does it imply ?

(h) Discuss various types of correlation with the help of scatter diagram.

(i) Briefly state the different methods of primary data collection.

(j) What is cluster sampling process and why it is used ?

(k) What is relative measure ? How does it differ from absolute measure ?

(l) Explain the term Skewness. For a moderately skewed distribution mean = 172, median = 167, S.D. = 60. Find out the coefficient of Skewness.

2. Answer any *four* questions : 4×10

(a) The competitors in a beauty contest are ranked by three judges in the following order :

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1st Judge | 1 | 5 | 4 | 8 | 9 | 6 | 10 | 7 | 3 | 2 |
| 2nd Judge | 4 | 8 | 7 | 6 | 5 | 9 | 10 | 3 | 2 | 1 |
| 3rd Judge | 6 | 7 | 8 | 1 | 5 | 10 | 9 | 2 | 3 | 4 |

Use the rank correlation to discuss which pair of judges have the nearest approach to beauty.

(b) For a set of 10 observations, the arithmetic mean and the CV are 40 and 40% respectively. If one observation equal to 50 is left out, what will be the value of AM and CV for the remaining 9 observations in the set ?

(c) Define standard deviation and state its relation with variance.

Find SD coefficient of variation and variance of the following distribution : 2+1+7

| *Rupees* | *Frequency* |
|---|---|
| 0 and above | 50 |
| 10 and above | 44 |
| 20 and above | 36 |
| 30 and above | 24 |
| 40 and above | 14 |
| 50 and above | 6 |
| 60 and above | 0 |

(d) Define and state the concept of regresssion the demand value of a product (in lakhs of ton) during the past 6 years is summarised in table below :

***Summary of demand value***

| *Year (x)* | *Demand (y)* |
|---|---|
| 2010 | 50 |
| 2011 | 60 |
| 2012 | 50 |
| 2013 | 80 |
| 2014 | 72 |
| 2015 | 90 |

Find linear regression to estimate the demand of the product in future. 2+1+7

(e) Define statistics and stae the improtance of uses of statistical methods in business organisation. What are the scopes of statistics in organisational performance ? 2+3+5

(f) What is frequency polygon as used in method of presentation of data after being collected.

Present the data as shown in following table in form of frequency prolygon. 3+7

| *Month 1st year income (in Rs) (Class interval)* | *No. of respondents (frequency)* |
|---|---|
| 0—5,000 | 20 |
| 5,000—10,000 | 30 |
| 10,000—15,000 | 40 |
| 15,000—20,000 | 60 |
| 20,000—25,000 | 30 |
| 25,000—30,000 | 20 |

**[ *Internal Assessment : 20 Marks* ]**