

NEW

2015

MBA 1st Semester Examination

QUANTITATIVE TECHNIQUES

PAPER—103

Full Marks : 100

Time : 3 Hours

The figures in the margin indicate full marks.

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

Illustrate the answers wherever necessary.

1. Answer any *eight* questions : 8×5

(a) Find the sum of $4 + 44 + 444 + \dots$ upto n terms.

(b) If the cost price of a product is for 150 and profit will be charged at a rate of 20% on selling price, determine the selling price of the product.

(c) Prove that Fisher's formula is an ideal index number.

(Turn Over)

- (d) Distinguish between primary data and secondary data with examples.
- (e) A student obtained the mean and S.D of 10 observations as 40 and 5.1 respectively. It was later found that he had wrongly copied an observation 50, the correct figure being 40. Calculate the correct S.D.
- (f) If $\gamma = 8$, $\Sigma xy = 60$, $\delta y = 2.5$ and $\Sigma x^2 = 90$, find the number of items.
- (g) State different types of correlation with the help of scatter diagram.
- (h) The product of 3 numbers in G.P is 729 and the sum of their squares is 819. Determine the numbers.
- (i) Find the difference between the amounts of the simple and the compound interest on Rs. 5000 for 20 years at the rate of 9% p.a.
- (j) The mean annual salary of all employees of a factory is Rs. 250000. The mean salary of male and female employees is Rs. 270000 and Rs. 170000 respectively. Find the percentage of males and females employed by the company.

- (k) The coefficient of variations of two series are 58% and 69%. Their standard deviations are 21.2 and 15.6. What are their arithmetic means ?
- (l) Six papers are set in an examination of which two are mathematical. In how many different orders can the papers be arranged so that :
- (i) the two mathematical papers are together ?
- (ii) the two mathematical papers are not consecutive ?

2. Answer any *four* questions : 4×10

- (a) Construct index numbers by chain base method of the following data of wholesale prices of cotton.

Year :	1964	1965	1966	1967	1968	1969	1970
Price :	75	50	65	60	72	70	69

- (b) If $\gamma = 8$, $\Sigma xy = 60$, $\delta y = 2.5$ and $\Sigma x^2 = 90$, find the number of items.
- (c) For a set of 10 observations, the AM and C.V are 40 and 40% respectively. If one observation equal to 50 is left out, what will be the value of AM & CV from the remaining 9 observations in the set ?

- (d) The number of runs scored by cricketers A & B during a test series of 5 test matches is shown below for each of the 10 innings :

A : 42 17 83 59 72 76 64 45 40 32
 B : 28 70 31 0 59 108 82 14 3 95

Make a comparative study of their batting performance.

- (e) (i) From the following marks obtained by eight students in Accounting and Economics, compute Spearman's rank correlation coefficient.

Student Roll No. : 1 2 3 4 5 6 7 8
 Marks in Accounting : 70 25 30 38 22 50 90 30
 Marks in Economics : 20 50 40 60 40 30 70 40

- (ii) State the properties of product moment correlation coefficient. 6+4

- (f) (i) What do you understand by coefficient of Determination ?

- (ii) For a given bivariate data

$\Sigma x = 60$, $\Sigma y = 40$, $\Sigma x^2 = 4160$, $\Sigma y^2 = 1720$, $\Sigma xy = 1150$, $n = 10$. Find the equations of two regression lines (the notations have usual meanings). 3+7

[Internal Assessment : 20]