

- B. Calculate the rank correlation coefficient (use Edward Spearman's formula). (10)

Series A	115	109	112	87	98	120	98	100	98	118
Series B	75	73	85	70	76	82	65	73	68	80

- IV. A. (a) 'In a sense index numbers are economic barometers'. Comment. (4)
 (b) Briefly explain:
 (i) Chain Base Index Numbers
 (ii) Consumer Price Index (6)

OR

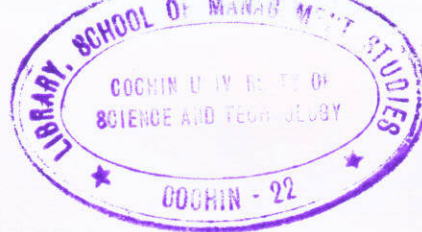
- B. Calculate the Laspeyre's and Paasche's Index Numbers for the year 2009 from the following data. (10)

Quantity (Kg)	Commodity			
	A	B	C	D
in 2004	8	10	15	20
in 2009	6	5	10	15
Price per Kg (₹)	A	B	C	D
in 2004	20	50	40	20
in 2009	40	60	50	20

- V. A. (a) Enumerate the major properties of normal distribution. (4)
 (b) The mean height of 500 students at a certain school is 151 cm and the standard deviation is 15cm. Assuming that the heights are normally distributed, find how many students have heights (i) between 119.5 and 155.5 cm and (ii) more than 160 cm. (6)

OR

- B. (a) Enumerate three major properties each of Binomial and Poisson distributions. (6)
 (b) If 5% of the electric bulbs manufactured by a company are defective, use Poisson Distribution to find the probability that in a sample of 100 bulbs (i) none is defective, and (ii) 5 bulbs are defective (Take $e^{-5} = 0.007$). (4)



MBA(IB).I/11.1016

**MBA (INTERNATIONAL BUSINESS) DEGREE I SEMESTER
EXAMINATION NOVEMBER 2011**

SMI 2104 QUANTITATIVE METHODS

Time: 3 Hours

Maximum Marks: 50

(5 × 10 = 50)

- I. A. (a) What do you mean by symmetric and skew-symmetric matrices?
If matrix A is symmetric and matrix B is skew-symmetric, then show that $p+q+x+y=2$.

$$\text{If } A = \begin{bmatrix} 1 & p & -4 \\ 2 & 2 & 4 \\ q & 4 & 2 \end{bmatrix} \quad B = \begin{bmatrix} 4 & -6 & x \\ y & 7 & 5 \\ 2 & -5 & 9 \end{bmatrix} \quad (6)$$

- (b) Briefly explain with one example each, (i) Null (Zero) matrix
(ii) Diagonal matrix (iii) Scalar matrix (iv) Unit (Identity) matrix. (4)

OR

- B. (a) Find the derivative of $x^5 + 2x^{3/2} + 2e^x - 4 \log x + 8$. (4)

- (b) If matrix $AB = \begin{bmatrix} 22 & 6 \\ 11 & 3 \end{bmatrix}$ and matrix $A = \begin{bmatrix} 4 & 1 \\ 7 & 4 \end{bmatrix}$, find matrix B. (6)

- II. A. (a) Briefly explain:
(i) Median
(ii) Mode
(iii) Harmonic Mean (HM). (6)

- (b) For the numbers 2, 4 and 8, find Arithmetic Mean (AM), Geometric Mean (GM) and Harmonic Mean (HM) and prove that $(AM)(HM) = (GM)^2$. (4)

OR

- B. Find the Standard Deviation and coefficient of variation of the marks of 150 students given in the following table. (6 + 4 = 10)

Marks	Number of students	Marks	Number students
1 – 10	5	51 – 60	22
11 – 20	12	61 – 70	15
21 – 30	20	71 – 80	6
31 – 40	25	81 – 90	4
41 – 50	40	91 – 100	1

- III. A. (a) Briefly describe: (i) Scatter Diagram (ii) Rank correlation. (4)
(b) Calculate the coefficient of correlation from the following data. (6)

X	1	2	3	4	5	6	7
Y	6	8	11	9	12	10	14

OR

(P.T.O.)