MBAF.I/12.12.1092

M.B.A DEGREE I SEMESTER EXAMINATION DECEMBER 2012

SMS 2102 QUANTITATIVE TECHNIQUES

(2012 Admissions)

Time: 3 Hours Maximum Marks : 50

PART A

(5 x 2 = 10)

1. 'Standard deviation, in fact, is RMS (Root Mean Square) of deviations'. Examine the statement using any basic formula for standard deviation.
2. What do co-efficient of correlation (r)' and co-efficient of determination (r^2) indicate?
3. 'Index numbers are, in fact, economic barometers'. Comment on the statement.
4. A binomial distribution has mean = 4 and variance = 12/9. Find the parameters p and n.
5. Define:
   (i) Symmetric matrix
   (ii) Skew symmetric matrix

PART B

(5 x 4 = 20)

6. Find the standard deviation of the heights of 100 students from the following data:

Heights (inches)	59-61	61-63	63-65	65-67	67-69
Frequency	4	30	45	15	6

7. Ten students got the following marks in Mathematics and Statistics. Find the correlation co-efficient (Edward Spearman's Rank co-efficient of correlation).

Student (Roll No.)	1	2	3	4	5	6	7	8	9	10
Marks in Mathematics	78	36	98	25	75	82	90	62	65	39
Marks in Statistics	84	51	91	60	68	62	86	58	53	47

8. Enumerate the characteristics of Index numbers and also their major uses.
9. Enumerate the major features of normal distribution.
10. Briefly explain with one example each:
    (i) Null (zero) matrix
    (ii) Diagonal matrix
    (iii) Scalar matrix
    (iv) Unit (identity) matrix

(P.T.O.)

PART C
(Answer *ANY TWO* questions)

(2 x 10 = 20)

11. (a) Calculate Karl Pearson's co-efficient of correlation (r) and co-efficient of determination (r^2) from the following data. Offer your comments on the results. (7)

Advertisement ('000₹)	39	65	62	90	82	75	25	98	36	78
Sales (Lakhs ₹)	47	53	58	86	62	68	60	91	51	84

(b) Karl Pearson's co-efficient of correlation between two variables X and Y is 0.28 and their co-variance is +7.6. If the variance of X is 9, find the standard deviation of Y. (3)

12. Find the Laspeyre's and Paasche's Index numbers for the year 2011 from the following data. (10)

Commodity	Base Year		Current Year	
	Quantity (Kg)	Price (₹)	Quantity (Kg)	Price (₹)
A	10	0.80	11	0.70
B	8	0.85	9	0.90
C	5	1.30	5.5	0.80

13. (a) Distinguish between primary and secondary data. What are the precautions to be taken while using the secondary data? (5)

(b) Write a note on the use of statistical packages in data analysis. (3)

(c) What is conditional probability? State Baye's theorem. (2)

***