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MBA /MBA(IB) (Sem. – 1st) **QUANTITATIVE TECHNIQUES**
SUBJECT CODE: MB – 104 (2008 & Onwards Batches) Paper ID: [C0167]
Time: 03 Hours **Maximum Marks: 60**

Instruction to Candidates:

- 1) Section - A is **Compulsory**. 2) Attempt any **Four** questions from Section - B.

Section – A **(10 × 2 = 20)**

- Q1)** a) Distinguish between Correlation and Regression.
b) Explain the mathematical properties of standard deviation.
c) What is Binomial distribution? What are its conditions?
d) What do you mean by additive Law of probability?
e) Distinguish between Type I error and Type II error.
f) What are the components of Time series analysis?
g) Briefly explain relationship between Arithmetic Mean, Geometric Mean and Harmonic Mean.
h) Differentiate between point estimation and interval estimation.
i) Define complement of a set.
j) Define the concept of standard error.

Section – B **(4 × 10 = 40)**

- Q2)** Construct Fisher' price index using following data and show how it satisfies the time and factor reversal tests.

Commodity	Year			
	2008		2009	
	Quantity	Price	Quantity	Price
A	20	12	30	14
B	13	14	15	20
C	12	10	20	15
D	8	6	10	4
E	5	8	5	6

- Q3)** The following data relate to the scores obtained by 9 salesmen of a company in an intelligence test and their weekly sales in (Rs. 000's)

Salesmen	A	B	C	D	E	F	G	H	I
Test Scores	50	60	50	60	80	50	80	40	70
Weekly Sales	30	60	40	50	60	30	70	50	60

- (a) Obtain the two regression equations.
(b) If the intelligence test score of a salesman is 65, What would be his expected weekly sales?

Q4) A footwear company has launched a 100% leather shoe for both male and female customers. The company conducted a survey to understand the perception of customers about a 100% leather shoe. The company has taken a random sample of 130 male and 150 female customers. Out of 130 males, 50 responded that a 100% leather shoe matches their lifestyle. Out of 150 females, 90 females responded that a 100% leather shoe matches their lifestyle. Does this indicate that there is a significant difference in the proportion of male and female customers in the population stating that a 100% leather shoe matches with their lifestyle? Test the hypothesis by taking 95% as confidence level.

Q5) Discuss the role of mathematics and statistics in various business decisions.

Q6) The weekly sales of two products A and B were recorded as given below:

Product A	59	75	27	63	27	28	56
Product B	150	200	125	310	330	250	225

Find out which of the two shows greater fluctuations in sales.

Q7) a) A man borrows Rs.40,000 and agrees to pay with a total interest of 5,600 in 12 instalments, each instalment being less than the preceding by Rs.400. What should be his first instalment?

b) If $A = \begin{pmatrix} 2 & 3 & 4 \\ 4 & 3 & 1 \\ 1 & 2 & 4 \end{pmatrix}$

Calculate A^{-1} .

