

MBA/ MBA (IB) Sem. 1<sup>st</sup>

Subject Code: MB-104

Quantitative Techniques

Paper ID: C0167

Time : 3 hours

Maximum Marks : 60

*Instructions to Candidates : Section A is Compulsory.**Attempt any **FOUR** question from Section B.***SECTION A (10x2=20)****I. Attempt all questions from Section A.**

- i. Explain Principles of Mathematical Induction.
- ii. Differentiate between Linear and Quadratic equations.
- iii. What is Skewness?
- iv. What do you mean by standard Error?
- v. List different Time series methods and their uses.
- vi. Explain Range with example.
- vii. How to calculate sample size, explain with formula?
- viii. Explain point estimation.
- ix. Explain binomial theorem.
- x. In a box, there are 8 red, 7 blue and 6 green balls. One ball is picked up randomly. What is the probability that it is neither red nor green?

**SECTION B (4x10=40)****Attempt FOUR question from each SECTION B.**

- II. What are matrices? How are determinants different from matrices? Discuss few applications of matrices in business.
- III. Eight coins were tossed together and the number of heads (x) resulting was noted. The operation was repeated 256 times and the frequencies (f) that were obtained for different values of x, the number of heads, are shown in the following table. Calculate median. Quartiles and 4th decile.

x	0	1	2	3	4	5	6	7	8
f	1	9	26	59	72	52	29	7	1

- IV.** The mean yield for a one-acre plot is 662 kg with a standard deviation of 32 kg. Assuming normal distribution, how many one-acre plots in a batch of 10,000 plots would expect yield
- (a) Over 700 kgs? (b) Below 750 kgs ?
- V.** The following figures show the distribution of digits in numbers chosen at random from a telephone directory.

Digits	Frequency
0	1026
1	1107
2	997
3	966
4	<b>1075</b>
5	933
6	1107
7	972
8	964
9	853

Test whether the digits may be taken to occur equally frequently in the directory.

- VI.** The ranks of same 16 students in Mathematics and Physics are as follows. Two numbers within brackets denote the ranks of the students in Mathematics and Physics.

(1, 1), (2, 10), (3, 3), (4, 4), (5, 5), (6, 7), (7, 2), (8, 6), (9, 8), (10, 11), (11, 15), (12, 9), (13, 14), (14, 12), (15, 16) (16, 13)

Calculate the rank correlation coefficient for proficiencies of this group in Mathematics and Physics.

- VII.** Random samples drawn from two countries gave the following data relating to the heights of adult males :

	Country A	Country B
Mean height in inches	67.42	67.25
Standard deviation	2.58	2.50
Number in samples	1000	1200

Is the difference between means level of significance.