Code: 18E00105

MBA (Fintech) I Semester Supplementary Examinations June 2019
## QUANTITATIVE TECHNIQUES
(For students admitted in 2018 only)

Time: 3 hours                                                                 Max. Marks: 60

All questions carry equal marks
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## SECTION – A
(Answer the following: 05 X 10 = 50 Marks)

1    What are the various applications of central tendency and measures of dispersion in decision making? Discuss.

OR

2    Calculate the standard deviation of the given marks for thirty students.

| Marks | <10 | <20 | <30 | <40 | <50 | <60 |
|---|---|---|---|---|---|---|
| No. of students | 5 | 12 | 15 | 21 | 25 | 30 |

3    The mean of a certain production process is known to be 50 with a standard deviation of 2.5. The production manager may welcome any change in mean value towards higher side but would like to safeguard against decreasing values of mean. He takes a sample of 12 items that gives a mean value of 48.5. What inference should the manager take for the production process on the basis of sample results? Use 5 percent level of significance for the purpose.

OR

4    Raju restaurant near the railway station at Pune has been having average sales of 500 tea cups per day. Because of the development of bus stand nearby, it expects to increase its sales. During the first 12 days after the start of the bus stand, the daily sales were 550, 570, 490, 615, 505, 580, 570, 460, 600, 580, 530 and 526. On the basis of this sample information, can one conclude that Raju restaurant's sales have increased?

5    Find the rank correlation between X and Y comment on the result.

| X | 12 | 21 | 34 | 42 | 10 | 35 | 20 | 40 | 50 |
|---|---|---|---|---|---|---|---|---|---|
| Y | 21 | 25 | 35 | 42 | 18 | 22 | 26 | 38 | 41 |

OR

6    What is regression? What are the properties of regression coefficients? Also explain the difference between correlation and regression.

7    A problem is statistics is given to three students A, B and C whose chances of solving it are 1/2, 1/3 and 1/4 respectively. What is the probability that the problem will be solved?

OR

8    The probability that a student will receive an A, B, C or D grades are 0.30, 0.35, 0.20 and 0.25 respectively. What is the probability that a student will receive at least grade B.

9    What are the various components of linear programming? Also explain the procedure to solve LPP using graphical method.

OR

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10      Solve the following LPP using Simplex method.
        $Maximize\ Z = 5x_1 + 7x_2$
        Subject to $x_1 + x_2 \le 4$
                $3x_1 + 8x_2 \le 24$
                $8x_1 + 7x_2 \le 35$
                $x_1,\ x_2 \ge 0$

## SECTION – B
(Compulsory question, 01 X 10 = 10 Marks)

11      **Case Study:**
        A company manufactures two products A and B. These products are processed in the same machine. It takes 10 minutes to process one unit of product A and 2 minutes for each unit of product B and the machine operates for a maximum of 35 hours in a week. Product A requires 1 kg and B 0.5 kg of raw material per unit the supply of which is 600 kg per week. Market constraint on product B is known to be 800 units every week. Product A costs Rs.5 per unit and sold at Rs.10. Product B costs Rs.6 per unit and can be sold in the market at a unit price of Rs.8.
        **Question:**
        Determine the number of units of A and B per week to maximize the profit.

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