MBA I Semester Regular/Supplementary Examinations, July-2021
QUANTITATIVE ANALYSIS FOR BUSINESS DECISIONS

Time: 3 Hours   **Max. Marks: 75**

*Answer Any **FIVE** Questions, one from each unit*
Question No. 11 is Compulsory

UNIT-I

1. a Solve the quadratic equation $2x^2 + x - 300 = 0$ using factorization   6M
    b   In a group of 6 boys and 4 girls, four children are to be selected. In how many   6M
        different ways can they be selected such that at least one boy should be there?

OR

2. a   6M
    If $A = \begin{bmatrix} 0 & 2 & 3 \\ 2 & 1 & 4 \end{bmatrix}$, $B = \begin{bmatrix} 7 & 6 & 3 \\ 1 & 4 & 5 \end{bmatrix}$ Find value of $2A + 3B$

    b   In how many ways can the letters of the word "IMPOSSIBLE" be arranged so that   6M
        all the vowels come together?

UNIT-II

3. Calculate Mean and Standard Deviation for the following frequency distribution: 12M

Marks	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of Students	4	6	15	28	22	15	10

OR

4. Calculate the two regression equations for the following data: 12M

Price	10	12	13	12	16	15
Demand	40	38	43	45	37	43

Estimate the likely demand when the price is Rs. 20?

UNIT-III

5. Explain various steps involved in decision making process.   12M

OR

6. Explain decision making under uncertainty and risk with illustrations.   12M

UNIT-IV

7. The class teacher of a class claims that the average score of the girl's students is   12M
    more than 72. Ten girl students are selected randomly to test the claim and recorded
    their scores as 65, 75, 55, 83, 87, 90, 60, 66, 76 and 70. Test at 5 percent
    significance level.

OR

8. What is point and interval estimates? Explain various components of hypothesis.   12M

UNIT-V

9. A car manufacturer aims to improve the quality of the products by reducing the defects and also increase the customer satisfaction. Therefore, he monitors the efficiency of two assembly lines in the shop floor. In line A there are 18 defects reported out of 200 samples. While the line B shows 25 defects out of 600 cars. At α 5%, is the differences between two assembly procedures are significant?   12M

OR

10. The operations manager of a company that manufactures tires wants to determine whether there are any differences in the quality of work among the three daily shifts. She randomly selects 496 tires and carefully inspects them. Each tire is either classified as perfect, satisfactory, or defective, and the shift that produced it is also recorded. The two categorical variables of interest are the shift and condition of the tire produced. The data can be summarized by the accompanying two-way table. Does the data provide sufficient evidence at the 5% significance level to infer that there are differences in quality among the three shifts?   12M

	Perfect	Satisfactory	Defective	Total
Shift 1	106	124	1	231
Shift 2	67	85	1	153
Shift 3	37	72	3	112
Total	210	281	5	496

11.   **CASE STUDY**   15M

The length of similar components produced by a company are approximated by a normal distribution model with a mean of 5 cm and a standard deviation of 0.02 cm. If a component is chosen at random. (a) What is the probability that the length of this component is between 4.98 and 5.02 cm? (b) What is the probability that the length of this component is between 4.96 and 5.04 cm (c) What is the probability that the length of this component is more than 4.94 cm.

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