MP–204/MP–304 (Old)

June – Examination 2024

Master of Business Administration (IInd Year) Examination

QUANTITATIVE TECHNIQUES

Paper : MP-204/MP-304 (Old)

*Time : **3** Hours*] [*Maximum Marks : **80***

Note :– The question paper is divided into three Sections A, B and C. Write answers as per the given instructions.

Section–A **8×2=16**

(Very Short Answer Type Questions)

Note :– Answer all questions. As per the nature of the question delimit your answer in one word, one sentence or maximum up to **30** words. Each question carries 2 marks.

1. (i) Explain three Utility of Quantitative techniques in solving management problems.

(ii) Add the following matrices :

$$A = \begin{bmatrix} 1 & 7 \\ 0 & 5 \end{bmatrix}$$

and

$$B = \begin{bmatrix} 5 & 6 \\ 7 & 2 \end{bmatrix}$$

(iii) Find the additive inversese of following matrix :

$$P = \begin{bmatrix} 7 & 6 \\ 2 & -2 \end{bmatrix}$$

(iv) Explain importance of Correlation.

(v) Write *two* types of variables used in regression analysis.

(vi) Explain meaning and definition of Index number.

(vii) Explain with formula the definition of probability.

(viii) Name three phases of operation research.

Section–B 4×8=32

(Short Answer Type Questions)

Note :– Answer any *four* questions. Each answer should not exceed **200** words. Each question carries 8 marks.

2. For the following data, Calculate index number taking average price of first five years.

Year	Price
2003	40
2004	42
2005	48
2006	58
2007	62

3. Find out value BA of the following marix :

$$B = \begin{bmatrix} 3 & 2 & 4 \\ 5 & -1 & 0 \\ 2 & -1 & 0 \end{bmatrix}$$

$$A = \begin{bmatrix} 2 & 1 \\ -1 & 2 \\ 3 & 1 \end{bmatrix}$$

4. Explain types of business forecasting methods with examples.

5. Three coins are tossed simultaneously. What is the probability that they will fall 2 heads and 1 tail.

6. In a multiple choice quiz each question has 5 alternatives out of them only one answer is correct. What is the probability of 6 correct answers out of 10 questions.

7. Draw the network diagram from the following table of activity and also calculate the critical duration and path :

Activity	Duration (in days)
1—2	16
1—3	12
2—3	13
2—4	10

3—4	9
4—5	8
5—6	11
4—6	10

8. What is decision theory ? Explain its ingredients of decision problem.

9. Name the different operation research models and explain any *two*.

Section–C **2×16=32**

(Long Answer Type Questions)

Note :– Answer any *two* questions. You have to delimit your each answer maximum up to **500** words. Each question carries 16 marks.

10. (i) Explain basic requirement and assemptions in Linear programming.

    (ii) Also explain general model of linear programming problem solving.

11. (i) Explain multiplication theorem of probablility :

    (a) When events are indepenedent

    (b) When events are dependent

(ii) An ordinary coin and six face dice were tossed simultaneously. Find out the probability of the coin to fall with tail upwords and the dice to fall with number 2 upwards.

12. (i) Explain addition and multiplication theorem of matrix algebra.

    (ii) Solve the following :

$$A = \begin{bmatrix} 1 & 0 \\ 1 & 1 \end{bmatrix}$$

find $A^3 + 6A$.

13. (i) Explain kinds of correlation.

    (ii) Calculate coefficient of correlation between age of husband and age of wife :

Age of wife	Age of husband
17	22
20	27
22	28

27	28
21	29
29	30
26	31
30	34