

MP-304(Old)/204(New)

December - Examination 2016

Master of Business Administration - II Year Examination**Quantitative Techniques****Paper - MP-304(Old)/204(New)****Time : 3 Hours]****[Max. Marks :- 80**

Note: The question paper is divided into three sections A, B and C. Write answers as per 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 upto 30 words. Each question carries 2 marks.

- 1) (i) What is transpose of a matrix?
- (ii) State the term adjoint matrix.
- (iii) If for the pairs of 10 items the sum of squares of rank differences is 42.50, find out coefficient of rank correlation.
- (iv) What is trend?
- (v) Find the value of 4P_3 .
- (vi) In how many different ways the word "MINIMUM" can be arranged?
- (vii) Define a mathematical model.
- (viii) What is dummy activity?

Section - B $4 \times 8 = 32$

(Short Answer Questions)

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

- 2) Find all the matrices that commute with the matrix $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$
- 3) What are the model used in quantitative techniques? Explain.
- 4) State and explain fisher's ideal formula for price index number and why it is called ideal?
- 5) Find 4 yearly moving averages of the sales figures given below:

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sales (₹)	98	106	104	100	105	102	103	102	110

- 6) Find the chance of drawing a king, a queen and knave in that order from a pack of cards in three consecutive draws, the cards drawn not being replaced.
- 7) Explain some methods, which are useful for decision making under condition of uncertainly. Illustrate each by an example.
- 8) A firm has a single mechanic in a repair shop. He works 8 hours a day, and on an average six machines go out of work each day. If it takes on an average one hour to repair a machine than on the basis of Poisson and exponential model calculate various constants relating to a working live system [calculate $E(T)$, $E(W)$, $E(n)$, $E(L)$]
- 9) What is operation research? Describe its main characteristics and significance.

Section - C**2 × 16 = 32**

(Long Answer Questions)

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

- 10) In an A.P. the tenth term exceeds the fifth term by 10 and their sum is 32, find the series.
- 11) Explain difference between correlation and regression. Describe utility of regression also.
- 12) A physician purchases a particular medicine on Monday of each week. The medicine must be used within the week following, otherwise it becomes worthless. The medicine cost ₹ 2 per dose and the physician charge ₹ 4 per dose. In post 50 weeks, the records of uses are as follows:

Dose per week	20	25	40	60
No. of week	5	15	25	5

Calculate:

- (i) Expected monetary value
 (ii) Expected opportunity loss
 (iii) Expected value of perfect information
- 13) Solve the following linear programming problem by simplex method.

$$\text{Maximize } Z = 5A + 3B$$

$$\text{Subject to: } 5A + 2B \leq 170$$

$$4A + 5B \leq 170$$

$$3A + 8B \leq 180$$

$$A \geq 0, B \geq 0$$