

MP-304/204(New)

December - Examination 2017

Master of Business Administration - II Year Examination**Quantitative Techniques****Paper - MP-304/204(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 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 Column Matrix?
- (ii) State the term diagonal Matrix.
- (iii) Explain Negative Correlation.
- (iv) State the term Real Income.
- (v) Find the value of $19P2$.
- (vi) In how many different ways the word KOTA can be arranged?
- (vii) Define Activity.
- (viii) Explain unbalanced Distribution in Transportation.

Section - B**4 × 8 = 32**

(Short Answer Questions)

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

- 2) If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 0 \\ 2 & -3 \end{bmatrix}$ and $C = \begin{bmatrix} 1 & -1 \\ 0 & 1 \end{bmatrix}$
- 3) What do you mean by differential calculus? Give properties of the differentials calculus.
- 4) Explain clearly the meaning of time series analysis. Indicate the importance of such on analysis in business.
- 5) By converting the following fixed base index numbers. Calculate the index number with 2015 year as base.

Year	2010	2011	2012	2013	2014	2015	2016
Index No.	100	120	150	170	190	200	240

- 6) A card is drawn out of a pack of cards. Find the probability that the card is an ace, a king, a queen, or a card of clubs.
- 7) Indicate the difference between decision-making under risk and uncertainty in statistical decision theory.
- 8) The following is known for a project.

Activity	1 – 2	1 – 3	2 – 3	2 – 4	3 – 4	4 – 5
Duration	20	25	10	12	6	10

Calculate the following:

- (i) Net work diagram of the project
- (ii) Critical path
- (iii) Total float for each activity.

- 9) What are the basic assumptions of a queue model? How is it that in a queue model the service rate exceeds the arrival rate?

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) Give the importance of quantitative technique for decision making. Also explain in brief different phases of Operations Research for problem solving.
- 11) Explain the concept of regression and ratio of variation and state their utility in the field of economic enquiries.
- 12) A person has two independent investments A and B available to him, but he can undertake only one at a time due to certain constraints. He can choose A first and then stop or if A is successful, than take B or vice-versa. The probability of success of A is 0.6, while for B it is 0.4. Both the investments require an initial capital outlay of ₹ 10,000 and both return nothing, if the venture is unsuccessful. Successful completion of A will return of ₹ 20,000 (over cost) and successful completion of B will return ₹ 24,000 (over cost). Draw decision tree and determine the best strategy.
- 13) An animal feed company must produce 200 kg of a mixture consisting of ingredients X_1 and X_2 . The ingredient X_1 cost ₹ 3 per kg and X_2 cost ₹ 5 per kg. Not more than 80 kg of X_1 can be used and atleast 60 kg of X_2 must be used. Find the minimum cost mixture.