

MBA Degree (PT) I Semester End Semester Examination – February/March 2022  
 16-372-0102: Quantitative Techniques  
 (Supplementary)

Time: 3 hrs

Max. Marks: 50

**PART A***(Answer ALL Questions. Each question carries 2 marks)*

- 1 What is meant by Rank Correlation?
- 2 Define coefficient of variation
- 3 What is meant by Mean Absolute Deviation?
- 4 What is Time Series Data?
- 5 Define Transpose matrix

**PART B***(Answer ANY FIVE questions. Each question carries 4 marks)*

- 6 What is the relationship among Arithmetic mean, Geometric mean and Harmonic mean? Verify for the following numbers 5,10,12
- 7 The table below gives the wage data of workers in an organization. Calculate the mean and standard deviation of the wages.

Daily wages (Rs)	No of workers
400	10
500	15
600	25
700	18
800	12

- 8 The steel production by a company for the last 7 years is given.

Year	2015	2016	2017	2018	2019	2020	2021
Production (MT)	60	70	75	65	80	85	90

Estimate the production for the year 2022 using Trend Method

- 9 Explain the concept of coefficient of determination
- 10 Define Bayes Theorem. Explain with suitable examples



- 11 Two events A and B are statistically dependent.  $P(A) = 0.39$ ;  $P(B) = 0.21$  ;  $P(A \text{ or } B) = 0.47$ . Find the probability that
- Neither A nor B will occur
  - Both A and B will occur
  - A will occur given that B has occurred
  - B will occur given that A has occurred
- 12 Solve using matrix algebra
- $$2x+3y = 12$$
- $$3x-2y = 5$$

### PART C

*(Answer ANY TWO questions. Each question carries 10 marks)*

- 13 (a) Explain the applications of index numbers in business (3 marks)
- (b) The table below gives the price and quantity data for three items in 2000 and 2020. Calculate the **Price** index numbers using the Laspeyre's method and the Paasche's method (7 marks)

Commodity	Price (Rs/ Unit)		Quantity ( MT)	
	2000	2020	2000	2020
Rice	10	12	49	50
Wheat	12	15	25	20
Pulses	18	20	10	12

- 14 (a) Explain the concept of correlation coefficient.(3 marks)
- (b) The following table gives the data regarding the industrial production indices and the number of unemployed. Calculate the correction between the production index and unemployment. (7 marks)

Year	2000	2001	2002	2003	2004	2005	2006	2007
Production Index	100	102	104	107	105	112	103	99
Number unemployed (Cr)	15	12	13	11	12	12	19	26

- 15 (a) Explain various probability distributions (5 marks)
- (b) What is the probability that a family with three children will have at least one boy child? Assume equal probabilities for a new born to be a boy or girl. (5 marks)

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