

Paper Id: 

270140
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Roll No: 

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**MBA**  
**(SEM I) THEORY EXAMINATION 2019-20**  
**BUSINESS STATISTICS**

**Time: 3 Hours****Total Marks: 100****Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief. 2 x 10 = 20**

- a. What are Measures of Central Tendency?
- b. What is Coefficient of Variation?
- c. What is Historical Series?
- d. What is Method of Least Square?
- e. What is Index Number?
- f. What is Regression Analysis?
- g. What is Probability?
- h. What is Baye's Theorem?
- i. What is F-test?
- j. What is Z-test?

**SECTION B****2. Attempt any three of the following: 10x3=30**

- a. What is meant by Measures of Dispersion? Discuss the various measurements of Dispersion.
- b. Explain the Additive and Multiplicative model of Time Series and also discuss the various components of Time Series.
- c. What are the types of Index Numbers? Discuss the uses of Index Numbers.
- d. What is meant by Binomial Distribution? Discuss the characteristics of Binomial Distribution.
- e. Define Association of Attributes. How would you measure it?

**SECTION C****3. Attempt any one part of the following: 10x1=10**

- a. Calculate the S.D. and its coefficient from the following data:  

Marks	:	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	:	6	8	15	7	3	0	1
- b. What is Kurtosis? How is it measures? What purpose does it serve?

**4. Attempt any one part of the following: 10x1=10**

- a. Fit a least squares trend to the following data. Also estimate the value of sale for the year 2025:  

Year	:	2012	2013	2014	2015	2016	2017
Sales (Rs. Lakh)	:	12	15	17	22	24	30
- b. Discuss the applications of Time Series in Business Decision Making.

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**5. Attempt any one part of the following: 10x1=10**

- a. Compute Laspeyre's, Pasche's, Fisher's index numbers from the following data:

Item	Base Year		Current Year	
	Price (Rs.)	Expenditure(Rs.)	Price (Rs.)	Expenditure(Rs.)
V <sub>1</sub>	5	125	6	180
V <sub>2</sub>	3	24	4	40
V <sub>3</sub>	2	20	3	24
V <sub>4</sub>	10	40	3	15

- b. Explain the meaning and significance of correlation. Give the general rules for interpreting its coefficient.

**6. Attempt any one part of the following: 10x1=10**

- a. A factory has two machines. Past records show that machine 1 produces 30% of the items of output and machine 2 produces 70% of the items. Further 5% of the items produced by machine 1 were defective and only 1% produced by machine 2 were defective. If a defective item is drawn at random. What is the probability that the defective item was produced by machine 1?
- b. What is meant by Normal Distribution? Discuss the characteristics of Normal Distribution.

**7. Attempt any one part of the following: 10x1=10**

- a. A random sample of 11 pairs of items from a normal population gives a coefficient of Correlation of +0.5. Is this value significant of the existence of correlation in the Universe? Use t-test. (Given : Critical value of  $t$  at 5% level of significance with 9 d.f. = 2.262)
- b. By using  $\chi^2$  (Chi-square) test, find out whether there is any association between income level and type of schooling:

Income	Public School	Govt. School
Low	200	400
High	1000	400

Given: 5% value of  $\chi^2$  for 1 d.f. is 3.841.