

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA – SEMESTER I – EXAMINATION – WINTER 2018**Subject Code: 3519207****Date: 01/01/2019****Subject Name: Business Statistics (BS)****Time: 10:30 am - 1:30 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 Explain following terms with examples**14**

- (a) Range of a data set
- (b) Independent variable
- (c) Mutually exclusive events
- (d) Seasonal variation
- (e) Median of ungrouped data
- (f) Discrete random variable
- (g) Relative Frequency

Q.2 (a) What is a Correlation? What are the types of Correlation?**07**

- (b)** The prices of agricultural commodities for 2013 and 2016 for the month of December are given below along with the quantities consumed commodities in 2013.

07

Commodities	Prices (Rs.)		Quantity (lbs.) for 2013
	2013	2016	
Rice	20	40	8
Wheat	50	60	10
Jowar	40	50	15
Cotton (raw)	20	20	20

Calculate Laspeyre's Index by keeping 2013 as base year.

OR

- (b)** Determine a regression line equation for the following two variables to predict y from x:

07

x	14	16	17	20	22	24	30	33	40
y	4	2	6	8	4	9	10	12	15

- Q.3 (a)** Explain three components of Time-series except Seasonal variation. **07**
- (b)** Calculate Mean, Median, Variance and Standard Deviation for the following data set. **07**

12, 14, 10, 6, 7, 13, 10, 4

OR

- Q.3 (a)** Write a short note on Measures of Shape. **07**
- (b)** Compute Paasche's Index for the following data by keeping the year 1995 as base year. **07**

Commodities	Quantity (units)		Price (Rs.)	
	1995	2000	1995	2000
A	100	150	5	6
B	80	100	4	5
C	60	72	2.5	5
D	30	33	12	9

- Q.4 (a)** Explain the concept of Autocorrelation in detail. **07**
- (b)** A company launches an advertising campaign of its new product on TV, radio and in print media in an area where 30% watch TV, 50% listen to the radio and the rest rely on news papers for all information. It is estimated that a person who sees the advertisement on TV will buy the product with probability 0.6. A person who has heard it on radio is expected to buy the product with probability 0.3 and seeing the advertisement in print will convince a person to buy the product with probability 0.1. A consumer, chosen at random, is found to have purchased the product. What is the probability she heard about the product on radio? **07**

OR

- Q.4 (a)** Discuss elements of Decision theory. **07**
- (b)** Determine Karl Pearson's co-efficient of correlation and also comment on the relationship between two variables on the basis of the same. **07**

x	133	110	105	115	120	122	130	140	160	165
y	59	70	85	50	111	90	95	75	60	65

Q.5 ELECTRA LMIMITED is the manufacturer of electrical equipment to be used in the production of automobiles. The average life-time of the equipment is 80 hours with a standard deviation of 16 hours. The life-times are normally distributed.

- (a) What is the probability that the equipment has a life-time of more than 120 hours? **07**
- (b) What is the probability that the equipment has a life-time between 90 and 100 hours? **07**

OR

- Q.5** (a) What is the probability that the equipment has a life-time of less than 65 hours? **07**
- (b) What is the probability that the equipment has a life-time between 50 and 75 hours? **07**
