Seat No:_____   Enrollment No:_____

PARUL UNIVERSITY
FACULTY OF MANAGEMENT
MBA. Winter 2017 - 18 Examination

Semester: 1   Date: 28/12/2017
Subject Code: 06200103   Time: 02:00PM to 04:30PM
Subject Name: Business Statistics   Total Marks: 60

Instructions
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1	Do as Directed.		
A).	Multiple choice type questions/Fill in the blanks. (Each of 1 mark)		(05)
	1) Which one of the following is not a method of Assigning probabilities?		
	a) The Classical Method	b) The mn Counting rule	
	c) Relative Frequency of Occurrence	d) Subjective Probabilities	
	2) Skewness is,		
	a) When a distribution is asymmetrical.	b) When a distribution is symmetrical.	
	c) The write half is a mirror image of the left half.	d) The normal distribution or bell curve.	
	3) Which of the following is not a Quantitative data graph?		
	a) Histogram	b) Ogives	
	c) Pie-Chart	d) Stem and Leaf plots	
	4) Classify each of the following as Nominal, Ordinal, Interval or Ratio Data.		
	a) No. of trucks sold	b) The age of each of your employees	
	c) The ranking of a company by fortune 500	d) The percentage return on a stock.	
	5) Which of the following is not the assumption of simple regression analysis?		
	a) The model is linear	b) the error terms are dependent	
	c) the error terms have constant variance	d) the error terms are normally distributed	
B).	Define the following. (Each of 1 mark)		(05)
	1. Kurtosis		
	2. Laspeyres Price Index		
	3. The Chi-Square goodness of fit test		
	4. Nonparametric Statistics		
	5. Bayes' Rule		
C).	Direct questions. (Each of 1 mark)		(05)
	1. Discrete Probability Distribution vs. Continuous Probability Distribution		
	2. Grouped Data vs. Ungrouped Data		
	3. Coefficient of Correlation vs. Coefficient of Determination		
	4. Empirical Rule vs. Chebyshev's Theorem		
	5. Descriptive Statistics vs. Inferential Statistics		
Q.2	Answer the following questions.		
A).	Define Statistics. state the area of business that uses statistics in decision making. Explain with example four common levels of Data measurement.		(07)
B).	Work the following binomial distribution problem by using the normal distribution. P (X = 8 | n =28 and p = 0.40)		(08)

Q.3	**Answer the following questions.**	
A).	What is Random and Nonrandom Sampling? Explain in brief Random and Nonrandom Sampling techniques with example.	**(07)**
B).	Compute a one-way ANOVA on the following data :	**(08)**

1	2	3	4	5
14	10	11	16	14
13	9	12	17	12
10	12	13	14	13
	9	12	16	13
	10		17	12
				14

Define the observed F value. Compare the observed F value with the critical table F value and decide whether to reject the null hypothesis. Use $\alpha = 0.01$.

Q.4	**Attempt any two questions. (Each of 7.5 mark)**	**(15)**

1. For the following data, construct a frequency distribution with six classes. Also construct Histogram and a stem-and-leaf plot for the following data.

57	23	35	18	21
26	51	47	29	21
46	43	29	23	39
50	41	19	36	28
31	42	52	29	18
28	46	33	28	20

2. A sample of 12 small accounting firms reveals the following numbers of professionals per office.

7	5	10	12	9	8
14	3	11	13	8	6

Determine the mean absolute deviation, variance, standard deviation, interquartile range, Z-score for the firm that has six professionals.

3. According to the nonprofit group Zero Population Growth, 78% of the adult U.S. population now lives in urban areas. Scientists at Princeton University and the University of Wisconsin report that about 15% of all American adults care for ill relatives. Suppose that 11% of American adults living in urban areas care for ill relatives.

   a) Use the general law of multiplication to determine the probability of randomly selecting an adult from the U.S. population who lives in an urban area and is caring for an ill relative.
   b) What is the probability of randomly selecting an adult from the U.S. population who lives in an urban area and does not care for an ill relative?
   c) Construct a joint probability table and show where the answer to this problem lies in the matrix.
   d) From the joint probability table, determine the probability that an adult lives in a nonurban area and cares for an ill relative.

4. Determine the equation of the Regression Line for the following data, and compute the residuals.

X	15	8	19	12	5
Y	47	36	56	44	21