Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF MANAGEMENT

BBA Summer 2018 - 19 Examination

Semester: 3 **Date: 13/05/2019**
Subject Code: 06191206 **Time: 10.30 am to 1.00 pm**
Subject Name: Business Statistics - I **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 **(05)**

1. The total probability of happening and non-happening of an event is

a) 1 **c)** -1

b) 0 **d)** none of these

2. The mean and variance of Binomial Distribution is _____ and _____.

a) np and npq **c)** n and p

b) 1 and 0 **d)** none of these

3. $E(ax+b)$ = _____.

a) $E(ax)+b$ **c)** $aE(x)+b$

b) $E(ax)$ **d)** none of these

4. The correlation coefficient lies between _____ and _____ .

a) 0 and 1 **c)** -1 and 0

b) -1 and 1 **d)** none of these

5. The regression coefficients are independent of

a) scale **c)** origin

b) scale and origin both **d)** none of these

B).Define the following **(05)**

1. Mutually exclusive events
2. Impossible event
3. Positive correlation
4. Probability mass function
5. Write the names of 2 attribute charts

C).Direct questions **(05)**

1. If A and B are mutually exclusive events, then $P(A \cap B) = 0$. True/False
2. If mean of Poisson distribution is 5, then find its variance.
3. Write a probability mass function of Binomial distribution.
4. If coefficient of correlation $r = +1$ then the two variables are linearly independent. True/False
5. If both the regression coefficients are positive, then the correlation coefficient is negative. True/False

Q.2 Answer the following questions

A). **i.** There are 4 red and 6 green balls in one bag and 5 red and 4 green balls in another bag. One bag is selected at random and 2 balls are drawn from it. Find the probability that both the balls are red. **(04)**

ii. A and B are two independent events and $P(A)=\frac{1}{2}$, $P(B)=\frac{1}{5}$ find $P(A \cup B)$? **(03)**

B). **i.** The Probability distribution of a random variable x is as follows **(04)**

x_i	0	1	2	3	4
$P(x_i)$	$\frac{1}{16}$	P	$\frac{3}{8}$	P	$\frac{1}{16}$

Find (a) The value of P (b) $E(x)$

ii. Find the Correlation Coefficient for the following data **(04)**

Wage :	100	101	102	102	100	99	97	98	96	95
Cost of Living index:	98	99	99	97	95	92	95	94	90	91

Q.3 Answer the following questions

A). **i.** Write the uses of SQC. **(04)**

ii. Write difference between correlation and Regression **(03)**

B).

i. For a Binomial distribution n=5 and $P(x = 1) = P(x = 2)$, find $P(x = 3)$. **(04)**

ii. You are given the following data. Find regression coefficients and both the regression lines **(04)**

	X	Y
Arithmetic Mean	39.5	47.5
Standard Deviation	10.8	16.8
Correlation between X and Y	0.42	

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

i. Draw $\overline{X}$ and R charts for the following data

Sample No	1	2	3	4	5	6	7	8	9	10
$\overline{X}$:	12.8	13.1	13.5	12.9	13.2	14.1	12.1	15.5	13.9	14.2
R:	2.1	3.1	3.9	2.1	1.9	3.0	2.5	2.8	2.5	2.0

[$D_3 = 0, D_4 = 2.115$]

ii. There are 100 misprints in a book of 100 pages. If a page is selected at random, find the probabilities that,(i) there will be no misprint (ii) there will be 1 misprint (iii) there will be at the most 2 misprints.

iii. Find the equation of regression lines from the following data and also estimate y for $x = 1$ and x for $y = 4$

X:	3	2	-1	6	4	-2	5	7
Y:	5	13	12	-1	2	20	0	-3

iv. In an industry a managing director is to be appointed from 3 persons A, B and C. The chance of selection of A is twice than that of B, while the chance of selection of B is twice than that of C. The probabilities that these persons, if selected as managing director will increase the bonus of the workers are respectively 0.2, 0.3 and 0.4. If the bonus has increased in the industry, find the probability that A is selected as managing director.