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

PARUL UNIVERSITY

FACULTY OF MANAGEMENT

BBA., Winter 2017 - 18 Examination

Semester: 3 **Date: 02/01/2018**
Subject Code: 06191206 **Time: 02:00PM to 04:30PM**
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 Of Questions : **05**

1. If coefficient of co-relation $r = +1$ then the two variables are _____
   (a) Linearly Independent (c) Linearly Dependent
   (b) Positive relation (d) Negative relation
2. The Correlation coefficient are independent of change of _____
   (a) Scale (c) origin and Scale
   (b) Origin (d) None of above
3. When a dice is thrown, A and B are the events of getting odd numbers and even numbers respectively then $p(A \cap B) =$ _____
   (a) 1 (c) 0
   (b) 0. 5 (d) 0.8
4. If $E(x) = 5$ and $E(x^2) = 30$ then $Variance\ (x) =$ _____
   (a) 5 (c) 25
   (b) 29 (d) 4
5. The parameters of binomial distribution is _____
   (a) n, p (c) n, q
   (b) p, q (d) np, npq

B). Define the following : (Each of 1 mark) **05**

1. Correlation Analysis
2. Random Experiment
3. Dependent Event
4. Mutually Exclusive Event
5. Probability mass function

C). Direct Questions : (Each of 1 Mark) **05**

1. What do you mean by Negative correlation?
2. Write construction of $\overline{X}$ chart
3. If A and B are two independent event, $P(A) = \frac{1}{2}$ and $P(B) = \frac{1}{5}$ find $P(A \cup B)$
4. Write a probability mass function of Binomial distribution.
5. The mean of Poisson distribution is 3. Find its standard deviation.

Q.2 Answer the following questions.

A)

1) Form the following data, find the coefficient correlation: **04**

	x	y
Assumed mean	41	32
The sum of deviations from assumed mean	-170	-20
The sum of squared of deviations from assumed mean	8180	2290
The sum of products of deviations from assumed mean	3480	
Number of pairs	10	

2) 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. **03**

Q.2 Answer the following questions.

B).

1) Find the equation of regression line y on x from the following information: **04**

$n=10, \sum x=130, \sum y=220, \sum x^2=2288, \sum xy=3467$

2) If $p(A)=\frac{1}{4}, p(B')=\frac{1}{3}, p(A\cap B)=\frac{1}{6}$, find $p(A\cup B), p(A'\cap B'), p(A'/B')$ **04**

Q.3 Answer the following questions.

A)

1) There are two defective pencils in a pack of dozen pencils. If three pencils are taken at random, find the probabilities that **04**
   (i) at most one pencil is defective
   (ii) two pencils are defective
2) There are 3 black and 2 white balls in a box. Two balls are taken at random from the box, find the expected number of white balls. **03**

Q.3 Answer the following questions.

B)

1) The probability that a blade manufactured by a factory is defective is $\frac{1}{500}$. Blades are packed in packets of 10 blades. Find the probabilities of **04**
   (i) no defective blade
   (ii) one defective blade
   (iii) two defective blades

   $\left(e^{-0.02}=0.9802\right)$
2) Two cubical dice are thrown simultaneous. Find the probability of getting : **04**
   (i) Total '9'
   (ii) Total at least '9'

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

1) Find Correlation Coefficient from the following data :

X	23	27	28	29	30	31	33	35	36	39
Y	18	22	23	24	25	26	28	29	30	32

2) Find the equations of regression lines and the correlation coefficient from the following data:

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

3) The following table gives the information regarding life hours of 5 fluorescent of 10 different samples. Draw $\overline{X}$ and R charts and state your conclusions.

Sample	1	2	3	4	5	6	7	8	9	10
$\overline{X}$	12.8	13.1	13.5	12.9	13.2	14.1	12.4	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

$\left[n=5, A_2=0.577, D_3=0, D_4=2.115\right]$

4) State Baye's theorem. It is known that 40% of the boys and 20% of girls are failed in a "Business Statistics" paper of second year BBA class with equal number of boys and girls. A student is selected at random and is found to be failed. What is the probability that selected student is (i) Boy? (ii) Girl?