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

PARUL UNIVERSITY

FACULTY OF MANAGEMENT

BBA Winter 2022 - 23 Examination

Semester: 3 **Date: 04/10/2022**
Subject Code: 06191206 **Time: 10.30am to 1.00pm**
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/Fill in the blanks. (Each of 1 mark) **(05)**

1. If coefficient of correlation r =1 then two variables will have _____ relation.
a) perfect positive c) perfect negative
b) negative d) positive

2. Formula for Binomial distribution is _____.
a) P(X=r) = $nCr\ p^r q^r$ c) P(X=r) = $nCr\ p^r q^n$
b) P(X=r) = $nCr\ p^r q^{n-r}$ d) none of above

3. P(A) + P(A)^{I} =_____.
a) 0 c) 1
b) -1 d) none of above

4. $E(a(x)+b)$ = _____.
a) $aE(x)+b$ c) $aE(x)+0$
b) $E(ax)+b$ d) $a^2E(x)+b^2$

5. Mean of a poisson distribution is _____.
a) pq c) e^m
b) m d) npq

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

1. Probability mass function
2. Random variable
3. Mutually exclusive event
4. Sample space
5. Discrete probability distribution

C).Direct questions. (Each of 1 mark) **(05)**

1. If $E(x)=2.1$ and $E(x^2)=8$ then $V(2x+3)$ = _____.

2. If A and B are two independent variables then P(A) =$\frac{1}{4}$ and P(B) =$\frac{1}{3}$ then find $P(A \cup B)$?

3. $b_{xy}=0.95$ and $b_{yx}=0.24$ then r = _____.

4. $2x-3y=7$ make regression line x on y from given equation _____

5. Probability of getting odd numbers of rolling a dice once?

Q.2 Answer the following questions.

A). 1. From following information find probability distribution and E(x)?

x_i	0	1	2	3	4
$P(x_i)$	0.063	K	0.38	0.063	2k

(07)

2. There are two defective pencils in a pack of dozen. if three pencils are taken at random find the probability that at most one pencil is defective?

B). Find Karl Pearson's coefficient of correlation between capital employed and profit obtained from the following data. What can we say about relationship between capital employed and profit?

Capital employed (Rs.in k)	10	20	30	40	50	60	70	80	90	100
Profit (Rs.in k)	2	4	8	5	10	15	14	20	22	50

(08)

Q.3 Answer the following questions.

A). In a factory there are three machines and they produced respectively 200,300,500 units of an item daily. The proportion defectives of these machines are 2%, 4% and 3% respectively. An item is taken at random from the day's production and it is found to be defective. find probability that the (i) item is produced by 1st machine (ii) item is produced by 2nd machine. **(07)**

B). Find the equations of both Regression lines and correlation coefficient from data. **(08)**

X	1	2	3	4	5	6	7	8	9
Y	9	8	10	12	11	13	14	16	15

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

1. Suppose 220 misprints are distributed randomly throughout a book of 200 pages. Find the probability that a given page contains (i) no misprint (ii) at most two misprints. **($e^{-1.1}$=0.3328)**

2. Draw $\bar{X}$ *and* R charts for the following data and state your conclusions.

Sample no.	1	2	3	4	5	6	7	8	9	10
$\bar{X}$	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

[For n=5 ,A_2=0.577 , D_3=0 , D_4=2.115]

3. By the method of least square fit a straight line for following data

X	1	2	3	4	5
Y	2	5	3	8	7

4. A box contains 6 black and 4 white balls two balls are drawn at random from it. Find the probability that, (i) both are black.
(ii) both are white.
(iii) both are different colour.