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

PARUL UNIVERSITY

FACULTY OF MANAGEMENT STUDIES

BBA Winter 2023 - 24 Examination

Semester: 03 **Date: 11/12/2023**
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.**			**CO**	**PO**	**BT**
	Multiple choice type questions/Fill in the blanks. (Each of 1 mark)	**(05)**				
	1. If A and B are mutually exclusive events then P(A∩B) is					
	a) 1	c) -1				
	b) 0	d) 2				
	2. The co-efficient of correlation lies between					
	a) -1 and 1	c) 1 and 2				
	b) 0 and 1	d) None of the above				
	3. P(A) + P(A′) = _____.					
	a) 1	c) 0				
	b) -1	d) none of above				
	4. The expected values of constant is					
	a) Constant	c) Both a and b				
	b) Non Constant	d) None of these				
	5. Standard deviation of Binomial Distribution is					
	a) $\sqrt{npq}$	c) $\sqrt{pq}$				
	b) npq	d) None of these				
B).	**Do as directed. (Each of 1 mark)**	**(05)**				
	1. Write down addition theorem for Probability.					
	2. Define Sample space.					
	3. Write down formula for Poisson distribution.					
	4. If A and B are Independent event then P(A∩B) = _____.					
	5. Mathematical expectation for discrete variables is _____.					
C).	**Direct questions. (Each of 1 mark)**	**(05)**				
	1. Let K=3 then V(Kx) = _____.					
	2. For three events A, B and C, P(A∪ $B \cup C$) = _____.					
	3. The correlation coefficient is independent of _____.					
	4. The product of regression coefficient can't exceed _____.					
	5. The mean and variance are equal in Poisson distribution (True/False)					
Q.2	**Answer the following questions.**					
A)	If P(A) =1/3, P(B′)= 1/4 and P(A∩B)=1/6 then find P(A∪ B), P(A′ ∩ B') and P(A′/ B′).	**(07)**				
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?	**(08)**				

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

Q.3 Answer the following questions.

A). The probability that a patient will get reaction of a particular injection is 0.001 . 2000 patients are given that injection find the probability that
i) 3 patients will get reaction.
ii) more than 2 patients will get reactions. ($e^{-2} = 0.135$) **(07)**

B). Find the regression Co-efficient b_{yx} and b_{xy}. Hence find the correlation co-efficient between x and y for the following data. **(08)**

X	4	2	3	4	2
Y	2	3	2	4	4

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

1. Six cubicle dice are thrown for 1458 times. If 2 or 3 is regarded as a success, find the probability of different number of successes and their expected frequencies.

2. The following table gives the information regarding life hours of 5 flouroscent lamps of 10 different samples. Draw $\bar{X}$ and R charts and state your conclusions

Sample no.	1	2	3	4	5	6	7	8	9	10
$\bar{X}$	3290	3180	3350	3370	3280	3240	3260	3410	3310	3510
R	360	210	50	100	50	400	500	200	300	600

[For n=5 $A_2 = 0.58$, $D_3 = 0$, $D_4 = 2.11$]

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.Three families have respectively 2 boys and 3 girls, 3 boys and 2 girls, 2 boys and 2 girls. 1 child is selected at random from each family. Find the probabilities that the selected group of 3 children will have
i) All boys
ii) All girls
iii)2 boys and 1 girl