



Seat No. \_\_\_\_\_

## HAL-19BBA303

**B. B. A. (Sem. III) (CBCS) (W.E.F. 2019)**

**Examination**

**June - 2023**

**Statistics**

*(Business Statistics) (New Course)*

Time :  $2\frac{1}{2}$  Hours / Total Marks : 70

- Instructions :** (1) All questions are compulsory.  
(2) Marks are denoted on right side.

- 1 (a) Explain : Types of Correlation. **8**  
(b) Find Rank Correlation. **12**

x	23	20	25	26	24	25	20	18
y	11	13	15	13	09	10	11	08

**OR**

- 1 Find  $r$  from the following information : **20**  
 $n=10, \bar{x}=25, \bar{y}=18, \sum(x-30)^2=3200, \sum(y-20)^2=1900,$   
 $\sum(x-30)(y-20)=600$

- 2 (a) Explain : Regression lines. **8**  
(b) Find regression coefficients from the following data : **12**

x	10	11	12	5	6	8	2	3
y	12	13	15	7	9	10	4	6

**OR**

- 2 By using following results, find  $y$  when  $x = 50$  and  $x$  when  $y = 30$  : **20**

$$\bar{x} = 39.5, \bar{y} = 47.5, S_x = 10.8, S_y = 16.8, r = 0.42$$

3 (a) Prove that :  $P(A \cup B) = P(A) + P(B) - P(A \cap B)$ . **8**

(b)  $P(A) = \frac{1}{3}$ ,  $P(B) = \frac{3}{4}$ ,  $P(A \cap B) = \frac{1}{6}$  then find **7**

$$P(A \cup B), P(A' \cap B'), P(A' / B').$$

**OR**

3 Three cards are drawn in such a way that the 3<sup>rd</sup> card is drawn **15**  
without replacing 1<sup>st</sup> and 2<sup>nd</sup> card of 52 cards. Find the probability  
of drawing at least 2 cards of spades.

4 (a) Write properties and uses of Binomial distribution. **8**

(b) For a Binomial distribution mean is 3 and variance is  $\frac{3}{2}$ , **7**

then find the prob. of getting at least four successes.

**OR**

4 The probability distribution of a r.v.  $x$  is given below : **15**

$x$	-2	-1	0	1	2
$P(x)$	0.2	$k$	0.3	$3k$	0.1

Find the value of  $k$  and find  $E(2x-3)$ ,  $V(2x-3)$ ,  $E(x^2+3)$ .