Enrollment No: _____   Exam Seat No:_____

C. U. SHAH UNIVERSITY
Winter Examination-2019

Subject Name : Statistics-I

Subject Code : 4CO03STA2   **Branch: B.Com (English)**

Semester : 3   **Date : 26/11/2019**   **Time : 02:30 To 05:30**   **Marks : 70**

Instructions:
   (1) Use of Programmable calculator & any other electronic instrument is prohibited.
   (2) Instructions written on main answer book are strictly to be obeyed.
   (3) Draw neat diagrams and figures (if necessary) at right places.
   (4) Assume suitable data if needed.

Q-1   **Attempt the following questions:**   **(14)**
   a) When both the variables are increasing in the same ratio the value of X   (1)
   will be ____
   a) +1   c) 0
   b) -1   d) 0 to +1
   b) The correlation coefficient being -1 if the slope of the straight line in a   (1)
   scatter diagram is _____
   a) Positive   c) Zero
   b) Negative   d) None
   c) Rank correlation coefficient was developed by….   (1)
   a) Karl Pearson   c) Spearman
   b) R.A.Fisher   d) Bowley
   d) Two regression lines always cut each other at _____   (1)
   a) Mean   c) Co-efficient
   b) Median   d) Mode
   e) If BXY and BYX are negative then X will be _____   (1)
   a) Positive   c) Can't say
   b) Negative   d) Zero
   f) " Both regression coefficients can not be greater than one. "statement is   (1)
   _____
   a) True   c) Some times true
   b) False   d) None
   g) bxy. byx = _____   (1)
   a) r   c) 0
   b) r^2 d) None
   h) What is the probability of an impossible event ?   (1)
   a) 1   c) -1
   b) 0   d) None
   i) If events A and B can not occur at the same time then it is known as ___   (1)
   a) Complementary events   c) Independent events
   b) Mutually exclusive events   d) None of above

j) If V(X) for a discrete random variable X is 3 then $V(3x + 2) =$ _____ (1)
    a) 5   b) 9   c) 3   d) None

k) The expected value of a constant K is ____ (1)
    a) K   b) K-1   c) K+1   d) None

l) Variance of binomial distribution is _____ (1)
    a) np   c) npq
    b) pq   d) None

m) In binomial distribution means is _____ variance (1)
    a) Greater than   b) Less than   c) Equal to   d) None

n) The sum of the difference rank is _____ (1)
    a) 1   b) -1   c) 0   d) None

Attempt any four questions from Q-2 to Q-8

Q-2   **Attempt all questions** **(14)**
    a) Write merits and limitations of rank correlation method. (7)
    b) Explain (with diagram): (7)
    1) Complementary event
    2) Mutually exclusive events

Q-3   **Attempt all questions** **(14)**
    a) The lengths and weights of five units taken from a manufacturing process (7)
    are given below :
    Find the correlation co-efficient between the length and weight

Length (in inches)	3	4	6	7	10
Weight (in ozs)	9	11	14	15	16

    b) The following information is obtained for two variables X and Y. Find (7)
    regression equation of Y on X .
    $n = 10 , \sum x = 130 , \sum y = 220 , \sum x^2 = 2288 , \sum xy = 3467$

Q-4

    Find the correlation co-efficient between age and proportion of (14)
    successful candidates using the following data.

Age of candidates	No. of candidates	Successful candidates
13-14	200	124
14-15	300	180
15-16	100	65
16-17	50	34
17-18	150	99
18-19	400	252
19-20	250	145
20-21	150	81
21-22	25	12
22-23	75	33

Q-5   **Attempt all questions** **(14)**
    a) There are 1000 people in a locality. Three news papers **A,B** and **C** are (7)

    available to them. 500 people read **A**, 400 people read **B** , and 400 read

    C, 100 people read both **A** and **B** , 150 read both **B** and **C**, and 200 read

both **A** and **C** , 40 people read all the three newspapers. Find the probability that a person selected at random from that locality reads at least one of the three papers.

b) There are 4 white and 6 black balls in one bag and 5 white and 4 black 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 white. (7)

Q-6	**Attempt all questions**	**(14)**
a)	Explain : 1) Difference event	(10)
	2) Intersection of two events	
	3) Union of two events	
b)	Write limitations of mathematical definition.	(4)
Q-7	**Attempt all questions**	**(14)**
a)	Define Mathematical expectation. State the characteristics of Mathematical Expectation.	(7)
b)	Write properties of binomial distribution	(7)
Q-8	**Attempt all questions**	**(14)**
a)	For a binomial distribution mean = 20 and Variance = 16. Find n.p.q	(7)
b)	The probability distribution of a random variable x is as follows :	(7)

Xi	-1	0	1	2	3	4
P(xi)	$\dfrac{1}{6}$	$\dfrac{1}{3}$	P	P	$\dfrac{1}{12}$	$\dfrac{1}{12}$

Find the value of P and also obtain mean and variance of x