

Enrollment No: \_\_\_\_\_

Exam Seat No: \_\_\_\_\_

# C. U. SHAH UNIVERSITY

## Winter Examination-2021

**Subject Name: Statistics - I**

**Subject Code: 4CO03STA2**

**Branch: B.Com (English)**

**Semester: 3**

**Date: 20/12/2021**

**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.

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Q-1	Attempt the following questions:	(14)
a)	For finding correlation between two attributes we consider.... (a) Pearson's correlation coefficient (b) Spearman rank correlation coefficient (c) coefficient of congruent (d) derivations scatter diagram	1
b)	Value of r is the independent of change of.... (a) Scale only (b) Origin only (c) Origin and Scale (d) None of these	1
c)	The correlation between the demand for commodities and their prices under normal times is..... (a) Positive (b) Negative (c) Zero (d) None of the above	1
d)	If $b_{yx}$ and $b_{xy}$ are positive r is... (a) Zero (b) Negative (c) Positive (d) None of the above	1
e)	The difference between observed value unexpected value in study of regression analysis is known as.... (a) Error (b) Residual (c) Deviation (d) (a) or (b) both	1
f)	The regression line are perpendicular to each other if $r = \dots$ (a) 0 (b) 1 (c) -1 (d) $\pm 1$	1
g)	Probability is expressed as.... (a) Percentage (d) Ratio (d) Proportion (d) All of the above	1
h)	Probability of impossible event is... (a) 0 (b) 1 (c) 0.50 (d) None of these	1
i)	If it is known that an event B has happened the probability of an event A Given B is called.... (a) Subjective Probability (b) Conditional Probability (c) Independent Probability (d) None of this	1
j)	If all the values taken by a r.v. are equal then. (a) its expected value is zero (b) its variance is positive	1



- (c) its variance is zero (d) None of these
- k) Probability distribution may be.... 1  
 (a) discrete (b) continuous (c) infinite (d) both (a) and (b)
- l) Mean of B.D. is.... 1  
 (a) np (b) npq(c)  $\sqrt{np}$  (d)  $\sqrt{npq}$
- m) When two variables are not independent the correlation coefficient may be Zero .... 1  
 (a) true statement(b) false statement  
 (c) both (a) and (b) (d) none of these
- n) The errors in case of regression equations are... 1  
 (a) Positive (b) Negative (c) Zero (d) All of the above

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

**Q-2 (14)**

From the following data find regression coefficients equations of regression lines and coefficient of correlation.

X	0	-1	1	2	3	-2	5	4	-2	6
Y	2	-4	-2	6	7	8	6	0	9	10

**Q-3 Attempt all questions (14)**

- (a) Explain Interpretation of Correlation and Properties of Coefficient of Correlation. 7
- (b) State the merit and limitations of Karl Pearson's correlation and Spearman's method of rank correlation. 7

**Q-4 Attempt all questions (14)**

- (a) For the following data obtain best estimate value of y when x =100 by suitable regression line: 7

$$\bar{x} = 65, \bar{y} = 70, \sigma_x = 2.5, \sigma_y = 3.5, r = 0.80$$

- (b) Explain Regression lines and state the uses of Regression analysis. 7

**Q-5 Attempt all questions (14)**

- (a) Calculate r from the following data. 14  
 $n=10, \Sigma x = 140, \Sigma y = 150, \Sigma (x - 10)^2 = 180, \Sigma (y - 15)^2 = 215,$   
 $\Sigma (x-10)(y-15) = 60.$

**Q-6 Attempt all questions (14)**

- (a) Explain events random experiment and sample space. 7
- (b) A bag contains 4 green and 5 white balls, another bag contains 5 green and 3 white balls. One ball is drawn at random from each. Find the Probability that they are of one green and one white. 7

**Q-7 Attempt all questions (14)**

- (a) Three urns are given each containing orange, cream and peach ball as indicated below. 7

Urn	Balls			Total
	Orange	Cream	Peach	
I	1	2	3	6
II	2	1	1	4
III	4	5	3	12

An urn is chosen at random and two balls are drawn without replacement from this urn if the balls are orange and peach find the



- (b) probability of choosing urn I, II, III respectively.  
Probability distribution of a r.v.  $x$  is as follows. 7

X	0	1	2	3	4
P(x)	0.10	K	0.30	K	0.10

**Find:**

1. K
2. Mean variance and Standard deviation.
3.  $E(2x + 1)$  and  $E(x+1)^2$
4.  $V(3x - 1)$

**Q-8**

- Attempt all questions** (14)
- (a) The probability that a bomb dropped from a plane will hit a target is  $\frac{1}{4}$ .  
Two bombs are enough to destroy a bridge. If four bombs are dropped on bridge find the probabilities that.... 7
1. The bridge will be completely destroyed.
  2. The bridge will be saved.
- (b) Explain the properties of Binomial Distribution and state the uses of Binomial Distribution. 7

