

C.U.SHAH UNIVERSITY

Summer Examination-2019

Subject Name: Statistics II**Subject Code: 4CO04STA2****Branch: B.Com (English)****Semester: 4 Date: 24/04/2019****Time: 02:03 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)** The normal distribution is 1
- (a) a discrete probability distribution (b) can't say
(c) A continuous probability distribution (d) None
- b)** Standard normal variate is denoted by. 1
- (a) σ (b) μ (c) z (d) None
- c)** The value of 'e' in normal distribution is 1
- (a) 2.7183 (b) 2.1738 (c) 3.1416 (d) 2.7138
- d)** What are the parameters of normal distribution? 1
- (a) x and σ (b) μ and σ (c) π and e (d) None
- e)** In linear trend equation $y = a + bx$, a and b are known as... 1
- (a) variables (b) Estimated value (c) Constants (d) Semi variables
- f)** Trend equation $y = a + bx + cx^2$ is called 1
- (a) linear trend equation (b) Second degree parabola equation
(c) Exponential trend equation (d) None of these
- g)** Seasonal variations is a part of Variations. 1
- (a) irregular (b) Short term (c) Cyclical (d) Long term
- h)** Phenomena which can not be measured numerically are known as 1
- (a) variable (b) Constant (c) Attributes (d) Random Variable
- i)** The value of Q always lies between 1
- (a) -1 and +1 (b) 0 and +1 (c) -1 and 0 (d) $-\infty$ and $+\infty$
- j)** Co-efficient of colligation is given by 1
- (a) colligation (b) Yule (c) Karl Pearson (d) Bowley
- k)** All the units of the sample should be selected under conditions. 1
- (a) identical (b) True (c) proper (d) None of these
- l)** Which is the most popular method of drawing a simple random sampling? 1
- (a) Lottery method (b) Table method
(c) Tossing method (d) None
- m)** Graphics method can be used for only variable. 1
- (a) 3 (b) n (c) 2 (d) $n-1$
- n)** The objective function for L.P problem is ... 1



- (a) Linear (b) Nonlinear (c) Exponential (d) None

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

Q-2 Attempt all questions (14)

- (a) Give the Assumption of Linear programming. **7**
 (b) Two types of hens are kept in a poultry farm. A type of hen costs Rs. 20 each and B type of hen costs Rs. 30 each. A type of hen lays 4 eggs per week and B type of hen lays 6 eggs per week. At the most 40 hens can be kept in the poultry. Not more than Rs. 1050 is to be spent on the hens. How many hens of each type should be purchased to get maximum eggs? **7**

Q-3 Attempt all questions (14)

- (a) Discuss the uses of Linear Programming. **7**
 (b) In a normal distribution 31% of the observations are less than 45 and 8% are more than 64. Find mean and S.D of the distribution. **7**

Q-4 Attempt all questions (14)

- (a) Stat the importance of normal distribution. **7**
 (b) Discuss the Component of Time Series. **7**

Q-5 Attempt all questions (14)

- (a) Give the merits and Limitations of Method of Moving Average. **7**
 (b) Fit a $y = a + bx$ to the following time series data also compete trend values & short time fluctuations. **7**

X	2011	2012	2013	2014	2015
Y	15	30	48	62	85

Q-6 Attempt all questions (14)

- (a) Explain method of studying Association. **7**
 (b) The following information is obtained from two samples drawn from two different cities: **7**

	City X	City Y
Total number of persons	1000	1200
Literates	600	800
Economically backwards persons	700	700
Economically backwards but literates	400	400

Q-7 Attempt all questions (14)

- (a) Find the coefficient of colligation **7**
 $N = 2000, (A) = 260, (\beta) = 1720, (AB) = 100$
 (b) Stat the Advantages and Limitations of Stratified random sampling. **7**

Q-8 Attempt all questions (14)

- (a) The families of a locality are divided into two strata according to their economic conditions. The following information is obtained: **7**

Stratum	Number of families	Average income	Stratum variance
1	30	5,000	40,000
2	20	8,000	1,20,000

Find the average income of all the families of the locality. If 5 families from first stratum and 3 families from second stratum are selected at random, find the variance of stratified.

- (b) Form a population having observations 1,5,9,11,14 how many different sample of size three without replacement can be taken? Verify that the mean of the sample means is equal to the population mean. Also obtain the variance of the sample mean. **7**

