

Enrollment No: _____ Exam Seat No: _____

C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name : Statistics-II

Subject Code : 4CO04STA2

Branch: B.Com. (English)

Semester : 4

Date : 03/05/2018

Time : 10:30 To 01:30

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) What percent of observations lie between $\mu \pm \sigma$ in normal distribution 1
(a) 68.26 (b) 0.6826
(c) 95.45 (d) 68.36
- b) The most appropriate method for solving L.P. problem is _____ 1
(a) graphical method (b) operating method
(c) simplex method (d) sampling method
- c) The objective function of L.P. problem is _____ 1
(a) linear (b) non- linear
(c) exponential (d) none of these
- d) For normal distribution median=..... 1
(a) $\frac{Q_1 + Q_3}{2}$ (b) $\frac{Q_1 - Q_2}{2}$
(c) $\frac{Q_1 + \mu}{2}$ (d) $\frac{Q_1 - \mu}{2}$
- e) Which is the most popular methods of drawing a simple random sampling? 1
(a) Lottery method (b) Table method
(c) Tossing method (d) None of these
- f) In which sampling method the entire population is divided into different strata? 1
(a) Stratified Random sampling (b) Simple Random sampling
(c) Systematic sampling (d) Multi stage sampling.
- g) Trend equation $Y = a + bx$ is called..... 1
(a) linear trend equation (b) second degree trend equation
(c) Exploration trend equation (d) None of these
- h) Which method of determining trend is based on mathematical formula? 1



- (a) Graphical method (b) Least square method
(c) Moving Average method (d) None of these
- i) Constraints is also called..... 1
(a) Limitations (b) Constants
(c) Variables (d) Solution
- j) Optimum feasible solutionthe objective function. 1
(a) Maximise (b) Minimise
(c) Maximise or Minimise (d) None of these
- k) Linear programming is a technique of..... 1
(a) sampling Method (b) Operation Research
(c) Operation management (d) Economics
- l) Graphical method can be used for only..... Variables. 1
(a) 3 (b) n (c) 2 (d) n-1
- m) Systematic sampling method can be used only when...of population is available. 1
(a) Group (b) System
(c) List of units (d) Cluster
- n) Variance of Stratified Sample Mean is denoted by..... 1
(a) S^2 (b) $V(\bar{y}_{st})$
(c) $V(\bar{y}_{st})$ (d) var

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

Q-2 Attempt all questions (14)

- a. Explain the meaning of Linear programming & its uses. 7
b. Discuss the advantages and disadvantages of Stratified Random sampling. 7

Q-3 a. Attempt all questions (14)

- b. Minimize $Z = 4X_1 + X_2$ under the following constraints. 7

$$X_1, X_2 \geq 0, \quad 3X_1 + X_2 \geq 30$$

$$4X_1 + X_2 \leq 60$$

$$X_1 + 2X_2 \geq 30$$

State the assumptions and limitations of Linear programming. 7

Q-4 Attempt all questions (14)

- a. The observations of a variable characteristics of a population are 2, 6, 10, 12, 14, and 16. Obtain all possible random samples of size two without replacement. Verify that the mean of the sample means is equal to the population mean. And also obtain variance of the sample means by direct method. 7
b. Write a note on seasonal fluctuations. 7

Q-5 Attempt all questions (14)

- a. State the advantages and disadvantages of graphical method. 7
b. Find association of attributes as per Yule's method: 7
 $N = 170, (A) = 80, (\beta) = 120, (\alpha B) = 20$

Q-6 Attempt all questions (14)



- a. Find out Coefficient of Colligation. 7
 $N = 2000, (A) = 260, (\beta) = 1720, (AB) = 100$
- b. State the advantages and disadvantages of Systematic sampling method. 7

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

- a. State the advantages and disadvantages of Least square method. 7
- b. Find trend by fitting equation of second degree parabola to the following data: 7

Year	2002	2003	2004	2005	2006	2007
Population (in thousand)	50	58	63	65	68	74

Q-8 **Attempt all questions** **(14)**

- a. A population is divided into three strata and the following information available: 7

Stratum	No. of Observation	Stratum Mean	Stratum Variance	Sample Size
1	120	42	60	12
2	100	45	50	10
3	80	50	70	10

- Find the variance of the stratified mean and population mean.
- b. State the properties of normal distribution. 7

