

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks

(10 x 1 = 10)

- 1 A researcher who is conducting research must be _____ and neutral in their approach.
 (i) Subjective (ii) Objective
 (iii) Biased (iv) Selective
- 2 In a two dimensional diagram
 (i) Only height is considered
 (ii) Only width is considered
 (iii) Height, width & thickness are considered
 (iv) Both height & width are considered
- 3 The sum of the deviation of individual observation is zero from
 (i) Arithmetic mean (ii) Median
 (iii) Mode (iv) Geometric mean
- 4 When coefficient of skewness is zero the distribution is
 (i) J - shaped (ii) U - shaped
 (iii) L - shaped (iv) Bell shaped
- 5 The correlation coefficient:
 (i) Has no limit (ii) Can be less than 1
 (iii) can be more than 1 (iv) Varies between ± 1
- 6 The regression lines cut each other at the point of
 (i) Average of X & Y (ii) Average of X only
 (iii) Average of Y only (iv) the median of X & Y
- 7 If an event cannot take place, probability will be
 (i) + 1 (ii) - 1
 (iii) 0 (iv) ± 1
- 8 If two events A and B are independent, the probability that they will both occur is given by
 (i) $P(A) + P(B)$
 (ii) $P(A) \times P(B)$
 (iii) $P(A) - P(B)$
 (iv) $P(A) \times P(B) - P(AB)$
- 9 Student t distribution was developed by
 (i) W.S. Gosset (ii) Karl Pearson
 (iii) Speaman (iv) Fisher
- 10 Analysis of variance is a test for equality of
 (i) Variance (ii) Means
 (iii) Proportions (iv) only two parameters

Cont...

- 11 a Explain about the various types of scaling techniques.

OR

- b Discuss the steps involving in report writing.

- 12 a The following is the information recoded with regard to yield of milk (in litres) obtained from 72 cows:

Milk	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16
Cows	4	8	15	28	10	4	2	1

Determine standard deviation and its coefficient variation.

OR

- b The following is the information relating to the protein intake (grams/day) recorded for 70 individuals.

Proteins	10	20	30	40	50	60	70
Individuals	1	5	12	22	17	9	4

Determine Karl Pearson's Coefficient of Skewness.

- 13 a Explain the method of scatter diagram with interpretation.

OR

- b Apply Karl Pearson's correlation coefficient between basal insulin level and basal glucose in 9 subjects.

Insulin Level	12	10	14	11	38	9	6	41	17
Glucose Level	98	103	101	102	108	100	101	117	99

- 14 a State Bayes' theorem and its applications.

OR

- b Explain the Binomial Distribution and also state its properties.

- 15 a Explain the general procedure of testing of Hypothesis.

OR

- b The below are given the gain in weight (lbs) of cows fed on two diets X and Y:

Diet	Gain in Weight (in lbs)									
X	25	42	30	32	24	14	32			
Y	24	34	22	30	42	31	40	30	32	35

Test at 5 % level, whether the two diets differ as regards their effect on mean increase in weight? ($t_{0.05}(15df) = 2.13$).

SECTION - C (30 Marks)

Answer any **THREE** Questions

ALL Questions Carry **EQUAL** Marks

(3 x 10 = 30)

- 16 Elucidate the methods of collecting primary and secondary data.

- 17 The frequency distribution of weight in grams of mangoes of a given variety is given below. Determine the arithmetic mean, median and mode.

Weight (in gms)	410-419	420-429	430-439	440-449	450-459	460-469	470-479
No. of Mangos	14	20	42	54	45	18	7

- 18 The age (X in years) and systolic blood pressure (Y) corresponding to 12 subjects are given below.

Age(X)	58	50	43	20	25	30	43	70	28	32	36	45
BP(Y)	135	139	120	122	120	128	135	160	120	126	125	130

- (i) Obtain the two regression equations.

- (ii) Estimate the BP corresponding to the subject with age 60 years.

- 19 State and Prove addition and multiplication theorem on probability.

- 20 The values for four samples are given below. Perform one way analysis of variance. Is the difference between the means significant? ($F_{0.05}(3,15) = 3.29$)

A	12	10	7	8	9	14
B	12	16	15	9	-	-
C	9	7	6	11	7	-
D	12	8	8	10	-	-

Z-Z-Z

END