Assignment
Statistics

Sl. No 1

Calculate the first four moments of the following distribution about the mean and hence find β_1 and β_2.

x	0	1	2	3	4	5	6	7	8
f	1	8	28	56	70	56	28	8	1

Sl. No 2

i) For a distribution, the mean is 10, variance is 16, $\gamma_1 + 1$ and β_2 is 4 . Find the first four moments about the origin.

ii) The first four moments about the value 5 of the variable are 2,20,40 and 50. Find moments about the mean.

Sl. No 3

Calculate the coefficient of correlation for the following ages of husband and wives:
Husband age: 23 27 28 28 29 30 31 33 35 36
Wife's age: 18 20 22 27 21 29 27 29 28 29
Also find the two regression lines.

Sl. No 4

The students get the following percentage of marks in Chemistry and Physics:

Students:	1	2	3	4	5	6	7	8	9	10
Marks in Chemistry:	78	36	98	25	75	82	90	62	65	39
Marks in Physics:	84	51	91	60	68	62	86	58	63	47

Calculate the rank correlation coefficient.

Sl. No 5

A sample of 12 fathers and their eldest sons gave the following data about their heights in inches:

Father	65	63	67	64	68	62	70	66	68	67	69	71
Son	68	66	68	65	69	66	68	65	71	67	68	70

Calculate the coefficient of rank correlation.

Sl. No 6

Obtain rank corelation for the following data:

X	68	64	75	50	64	80	75	40	55	64
Y	62	58	68	45	81	60	68	48	50	70

Sl. No 7

Find the correlation coefficient and the two regression lines for the following data:

X	1	2	3	4	5	6	7	8	9	10
y	10	12	16	28	25	36	41	49	40	50

Sl. No 8

i) Two variables have the regression lines with equations $3x + 2y = 26$ and $6x + y = 31$. Find the mean values and the correlation coefficient between x and y.

ii) The first four moments about the value 2 of the variable are 1,17,-30 and 50. Find moments about the mean.

Sl. No 9

The Mathematicsgrade, intelligence test score and number of classes missed data of 12 students are given.

Chemistry grade (y)	85	74	76	90	85	87	94	98	81	91	76	74
Test score(x_1)	65	50	55	65	55	70	65	70	55	70	50	55

	Classes missed(x_2)	1	7	5	2	6	3	2	5	4	3	1	4

a) Fit the best multilinear model that represents the relationship of the form

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2$$

b) Estimate the chemistry grade for a student who has an intelligence test score of 60 and missed 4 classes

10 An experiment was conducted to determine if the weight of an animal can be predicted after a given period of time on the basis of the initial weight of the animal and the amount of feed that was eaten. The following data, measured in kilograms, were recorded:

Final weight(y)	95	77	80	100	97	70	50	80	92	84
Initial weight(x_1)	42	33	33	45	39	36	32	41	40	38
Feed weight(x_2)	272	226	259	292	311	183	173	236	230	235

a) Fit the best multilinear model that represents the relationship of the form $y = \beta_0 + \beta_1 x_1 + \beta_2 x_2$.

b) Predict the final weight of an animal having an initial weight of 35 kilograms that is given 250 kilograms of feed.