

Agnihotri Engg. & GATE Classes

Scripting success stories

Correlation & Regression

Q.1) Find the Carl Pearson Coefficient of correlation 'r' from the following data ?

a) Ten students get the following percentage of marks in maths and science, find 'r' ?

Roll no.	101	102	103	104	105	106	107	108	109	110
Marks in Maths	78	36	98	25	75	82	90	62	65	39
Marks in Science	84	51	91	60	68	62	86	58	53	47

(Ans = ; 0.78)

b) Intelligence ration IR and Engineering ratio ER of ten students are as tabulated. Find the coefficient of correlation ?

Students	A	B	C	D	E	F	G	H	I	J
I.R.	105	104	102	101	100	99	98	96	93	92
E.R.	101	103	100	98	95	96	104	92	97	94

(Ans = ; 0.59)

c) Find the correlation coefficient between x and y from the given data ?

x	78	89	97	69	59	79	68	57
y	125	137	156	112	107	138	123	108

(Ans = ; 0.94866 or 0.95)

Q.2) Compute the rank correlation coefficient 'r' (Spearman's Rank Correlation Coefficient) for the following table ?

a)

Person	A	B	C	D	E	F	G	H	I	J
Rank in Maths	9	10	6	5	7	2	4	8	1	3
Rank in Science	1	2	3	4	5	6	7	8	9	10

(Ans = ; - 0.697)

b) Ten participants in a contest are ranked by two judges as follows :

x	1	6	5	10	3	2	4	9	7	8
y	6	4	9	8	1	2	3	10	5	7

(Ans = ; 0.6)

c) Calculate the rank correlation coefficient for the following data ?

Maths	3	8	9	2	7	10	4	6	1	5
Physics	5	9	10	1	8	7	3	4	2	6

(Ans = ;)

Q.3) The regression equations obtained from a correlation table are $2x - 9y + 6 = 0$ & $x - 2y + 1 = 0$ then find

a) The correlation coefficient b) The means of x c) The means of y (Ans = ; $r = 2/3$, 0.6 , 0.8)

Q.4) Find the regression line of y on x for the following data. Also estimate y when x = 10 ?

X	1	3	4	6	8	9	11	14
Y	1	2	4	4	5	7	8	9

(Ans = ; $7x - 11y + 6 = 0$ & $y(10) = 76/11$)

Q.5) Following table shows the test score made by salesman on an intelligence test & their weekly sales.

Calculate the regression line of sales on test score & estimate the most probable weekly sales volume if a salesman make a score 70 ?

Salesman	1	2	3	4	5	6	7	8	9	10
Test Score	40	70	50	60	80	50	90	40	60	60
Sales	2.5	6.0	4.5	5.0	4.5	2.0	5.5	3.0	4.5	3.0

(Ans = ; $y = 0.06 + 0.45x$ & 4.65)

Classes on (ED,BEEE,M1,M2,M3,NA,CONTROL,DSP & other GATE oriented Engineering Subjects)

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