Department of computer Applications

Course :BCA (DATA SCIENCE**)**   **session** :July -Dec 2023

Q1. Define correlation coefficients and calculate the correlation coefficients for the following heights (in inches) of fathers(X)and their sons (Y):

X	65	66	67	67	68	69	70	72
Y	67	68	65	68	72	72	69	71

Q2. A computer while calculating correlation coefficients between two variables X and Y from 25 pairs of observations obtained the following results:

n=25, $\sum x = 125$, $\sum y = 100$, $\sum xy = 508$,$\sum x^2$=650 , $\sum y^2$=460 . find correlation coefficients of the given data.

Q3. Obtain the equations of two lines of regression for the following data. Also obtain the estimate of X for Y =70.

X	65	66	67	67	68	69	70	72
Y	67	68	65	68	72	72	69	71

Q4. For 10 randomly selected observations, the following data were recorded :

Observation No.	1	2	3	4	5	6	7	8	9	10
Overtime hrs.(X)	1	1	2	2	3	3	4	5	6	7
Additional units (Y)	2	7	7	10	8	12	10	14	11	14

Determine the coefficients of regression and regression equation using the non linear form:

Y = a+bx+cx^2.

Q5. Fit an exponential curve of the form Y=ab^x to the following data :

X	1	2	3	4	5	6	7	8
Y	1.0	1.2	1.8	2.5	3.6	4.7	6.6	9.1

Q6. Fit an power curve of the following data :

X	1	2	3	4	5	6
Y	1.0	1.2	1.3	1.8	2.1	7.1

Q7. The Ranks of some 16 students in Math's and physics are as follows. Two no. in brackets denotes the ranks of the students in Math's and physics .

(1,1) ,(2,10) ,(3,3) ,(4,4) ,(5,5) ,(6,7) ,(7,2) ,(8,6) ,(9,8) ,(10,11) ,(11,15) ,(12,9) ,(13,14) ,(14,12) ,(15,16) ,(16,13).

Calculate the rank correlation coefficients for the proficiencies of this group in Math's and physics .

Q8. Fit a straight line to the following data :

X	3	7	9	10
Y	168	120	72	63