Assignment : IX and X on unit V

Q.1 From the following data, calculate Karl Person's correlation coefficient.

X	18	15	17	16	12	14	19	20
Y	15	16	14	17	15	11	18	19

Q.2 Calculate product moment correlation coefficient between advertising expenditure (in '1000) and annual sales (in '1000) given below:

Advt Expenses	3	7	4	2	1	4	1	2
Sales	11	16	9	4	7	6	3	8

Q.3 For the following data calculate Pearson's coefficient of correlation.

X	20	22	18	17	10	25	7	15
Y	15	17	16	10	5	19	4	8

Q.4 Find Pearson's correlation coefficient for the following data regarding 7 friends's marks.

Marks in Mathamatics	12	31	53	11	31	42	26
Marks in statistics	41	18	37	30	18	45	34

Q.5 Fit linear regression equation for the following data:

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

Q.6 Fit linear regression equation for the following data:

X	1	2	3	4	5
Y	14	27	40	55	68

Q.7 Fit second degree polynomial by least square method for the following data:

X	1	2	3	4	5
Y	3	8	11	12	15

Q.8 Find the least square polynomial approximation of degree two for the following data:

X	0	1	2	3	4
Y	-4	-1	4	11	20

Q.9 Fit second degree curve of regression for the following data:

X	1	2	3	4
Y	6	11	18	27

Q.10 Fit a straight line trend by the method of least square to the following data and obtain the trend value for 2012.

Years:	**2007**	**2008**	**2009**	**2010**	**2011**
Sales ('000 units)	58	79	100	121	142

Q.11 Fit a straight line by the method of least squares & estimate the trend for the year 2013.

Year	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Assets	45	49	51	50	52	53	50

Q.12 The following table gives the revenue of Nishana Ltd. For 5 consecutive years. Find the equation of the trend by using the method of least squares. (Trend values for each year is not expected)

Year	**2003**	**2004**	**2005**	**2006**	**2007**
Revenue (Cr.Rs.)	21	24	23	28	26

Q.13 Fit a straight line trend and estimate it for the year 2008. Also draw a graph

of given time series and trend line.

Year	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**

Assets in Crores	83	92	71	90	110	115

Q.14 Obtain an equation of trend for the following data and hence estimate sales in 2006.

Years	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Sales '000	88	96	75	94	164	195

Q.15Fit a straight line trend to the following data and estimate trend values for all the years.

Years	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
Sales '000	100	120	118	124	136	140

Q.16 Estimate the marks in statistics of a student who secured 65 marks in mathematics from the following Bivariate data:

	Mathematics	**Statistics**
Mean marks	70	80
Standard deviation	8	10
Correlation coefficient	0.8	

Q.17 Given the two regression equations $4x - y - 23 = 0$ & $3x - 2y + 4 = 0$. Find the mean values x & y the correlation coefficient.

Q.18 the regression equation of y on x is $3x - 10y + 155 = 0$ find the regression equation of x on y is $10x - 7y - 10 = 0$. Find the mean values of x and y and also the Pearson's coefficient correlation r.

Q.19 A random sample of 15 from a normal universe gives a correlation coefficient of -0.5. Is this significant of the existence of correlation in the population?(at 5% level of significant)

Q.20 A correlation coefficient based on sample size 18 was computed to be 0.32 can we conclude at significant level of 5% that the corresponding population correlation coefficient differs from zero?