PRACTICE QUESTIONS

1. The table below shows how six students were graded in Maths and Physics exams

Maths	E	C	B	F	D	A
Physics	F	A	D	E	C	C

Calculate the rank correlation Coefficient. Comment on your results

2. The table below shows the concentration of roots of a certain tree with respect to depth

Root Concentration	80	75	86	60	75	92	86	50	64	75
Soil depth	62	58	60	45	68	68	81	48	50	70

Calculate the correlation coefficient between the root concentration and soil depth.

3. Eight students participated in an Examination completion for two subjects Mathematics and Physics.

Students	A	B	C	D	E	F	G	H
Mathematics (x)	48	45	35	45	42	15	45	33
Physics (y)	68	54	48	58	75	40	60	57

Calculate;
(i)   the rank correlation co-efficient
(ii)   comment on 1% level of significance

4. The table below gives the marks scored by eight students in two sets of mocks 1 and 2

Mock 1	72	50	50	55	35	50	82	55
Mock 2	50	55	70	50	40	48	73	70

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Calculate a rank correlation coefficient between the performances in the two sets of Mocks. Comment on your result.

5. The table below shows the mock examination marks and the A level grades obtained by students in a certain year;

Marks in mocks	76	41	78	59	14	29	61	86	32	64	51
Grades in A level	A	B	B	C	D	E	B	A	D	C	E

Calculate the rank correlation coefficient of the performance of students. Comment on your results.

6. The table below presents the quantity demanded of a commodity (Y units) and customer income (X Ug Shs) from 2008 to 2017 in Manafwa district.

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
X ('000)	10	12	11	13	15	14	12	14	11	12
Y ('000)	4	6	3	6	7	8	5	7	5	7

(a) Plot a scatter graph for the above data and comment on the graph
(b) Draw a line of best fit and use it to estimate;
    (i)   quantity demanded when the customer income was **7,500/=**
    (ii)   income needed to purchase **9000** units
(c) Calculate the rank correlation coefficient between the quantities demanded and the customer income. Comment on your result.

7. The table below shows the speeds (y) in seconds and the number of errors (x) in the typed scripts of 12 secretaries of a certain institution.

Secretaries	A	B	C	D	E	F	G	H	I	J	K	L
Errors (x)	12	24	20	10	32	30	28	15	18	40	27	35
Speed (y)	130	136	120	120	153	160	155	142	145	172	140	157

(a) Construct a scatter diagram, draw the line of best fit and comment hence estimate x when $y = 142$.

(b) Giving rank 1 to the fastest secretary and the secretary with the fewest errors calculate the rank correlation co-efficient and comment at 5% level of significance.

8. The table below shows the amount of rainfall(mm) and the tons of maize produced by a Farmers forum from 2006 to 2016.

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Amount of rainfall in mm	5	8	10	12	10	15	18	20	21	25
Tons of Maize Grains harvested	45	50	55	58	58	72	70	85	78	85

(a) Plot a scatter graph for the above data and comment on your graph

(b) Draw a line of best fit and use it to estimate the rain fall needed to have an output of 100 tones of maize grain assuming other factors remained constant.

(c) Calculate the rank correlation coefficient between the amount of rainfall received and the maize production. Comment at 1% level of significance.