UPPER-SIXTH COMM **BUSINESS MATHEMATICS (MR. SAMOU RONIS)**

PREPARED REVISION QUESTIONS (GCE)- STATISTICS/PROBABILITY

1) Given the following distribution

Rate of fatty material observed (X)	N of cheese (X)
20-30	100
30-40	140
40-X	125
X-70	200
70-100	180
100-Y	55

a) Knowing that the median of this series is equal to 56.8, determine the value of X **(10 marks)**

b) The arithmetic mean of the population studied is 60.5. Calculate the value of Y using the value of X obtained in (a) above. **(10 marks)**

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2) You are given the table below relating to some commodities for three consecutive years in a household

	2002		**2003**		**2004**	
	UP	**Qty**	**UP**	**Qty**	**UP**	**Qty**
Rice	21 000	10	23 100	10	25 200	15
Soap	30 000	5	27 000	6	30 000	7
Sugar	30 000	5	33 000	5	36 000	5
Fish	45 000	5	54 000	5	54 000	5

Calculate

a) The simple price and quantity indices of the commodities for 2004 taking 2002=100. **(6 marks)**

b) The LASPEYRES price and quantity index for 2003 using 2002=100. **(7 marks)**

c) The PAACHE'S price and quantity index for 2004 using 2002=100. **(7 marks)**

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3) To study the effectiveness of an advertisement a survey is conducted by calling people at random and asking them the number of advertisement read or seen in a week(x) and the number of items purchased (Y) in that week.

X	50	100	40	0	20	70	30	60
Y	100	120	50	20	10	30	40	80

Calculate

a) The product moment correlation coefficient between X and Y.

b) The coefficient of determination.

c) Calculate the approximate correlation coefficient of X and Y.

d) The covariance of X and Y.

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4) Given the following probability distribution where T:S = 1:4

$\mathbf{Y_i}$	4	9	10	2
$\mathbf{P(Y_i)}$	T	0.2	0.25	S

Find;

a) E(Y)
b) $E(Y^2)$
c) The standard deviation of Y
d) E(2Y + 5)

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5) Extra life sold 5 product for a total revenue of 28 800 000frs and the total cost incurred in selling them were; 40 000 000frs, 25 000 000frs, 30 000 000frs, 50 000 000frs and 20 000 000frs respectively. The probabilities of selling products are tabled below:

Product type	A	B	C	D	E
probability	0.2	X	0.3	0.1	0.2

a) Determine the value of X
b) Estimate the expected cost incurred
c) Calculate the variance of the cost incurred
d) Determine the profit/loss made on the selling of the product: