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MAIN EXAMINATION

JANUARY – APRIL 2015 TRIMESTER

FACULTY OF COMMERCE

DEPARTMENT OF ACCOUNTING AND FINANCE

EVENING PROGRAMME

CMS 211: INTRODUCTION TO BUSINESS STATISTICS

Date: April 2015	**Duration: 2 Hours**
INSTRUCTIONS: Answer Question ONE and any other TWO Questions	

Q1 a) Make a distinction between the following statistical terms:

i Descriptive versus inferential statistics **(2 Marks)**

ii Nominal versus interval data **(2 Marks)**

iii Frequency polygon versus ogive **(2 Marks)**

iv Positively-skewed versus negatively-skewed distribution **(2 Marks)**

v Coefficient of correlation versus coefficient of determination **(2 Marks)**

b) The following is the number of minutes taken to commute from home to work for a group of automobile executives:

28	25	48	37	41	19	32	26	16	23	23	29	36
31	26	21	32	25	31	43	35	42	38	33	28	

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Required:

I Using sturge's formula, how many classes would you recommend for the above data? **(2 Marks)**

ii What size of class interval would you suggest for the distribution? **(2 Marks)**

iii What would you recommend as the lower limit of the first class? **(1 Mark)**

iv Organize the data into a frequency distribution using the inclusive method of data classification and give a comment on what the frequency distribution portrays **(3 Marks)**

c) The following are times (in minutes) spent on the internet by 10 customers of a particular cyber cafe:
0, 9, 22, 8, 33, 7, 0, 5, 14, 12

i Determine the standard deviation of these times **(3 Marks)**

ii Determine the inter-quartile range of the times? **(3 Marks)**

iii State the reason (s) you might use the standard deviation to measure dispersion as opposed to the range **(1 Mark)**

d) Interviewers A and B awarded marks and ranks respectively to give candidates who appeared for an interview as follows:

Candidate	C_1	C_2	C_3	C_4	C_5
Mark by A	73	87	76	70	87
Mark by B	1	4	3	2	5

Required:
Using Spearman's rank correlation coefficients determine the degree of association between the views of the two interviewers on the candidates and comment on the views using your computed value. **(5 Marks)**

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Q2. a) The daily earnings of a popular music entertainer were tabled as follows:

Earnings (Sh 000s)	10-15	15-20	20-25	25-30	30-35	35-40
No of weeks	8	13	K	9	6	4

If the median of the data is 22, determine the value of K. Hence, compute the mean daily earnings **(8 Marks)**

b) The monthly salaries of a group of twenty five employees was classified as follows:

Salary group (£' 000s)	1-2	2-3	3-4	4-5
No. of employees	F_1	6	9	F_4

Given that the modal pay is 3500, determine the values of f_1 and f_4 **(6 Marks)**

c) An experimenter planted particular bean seeds in various plots with a view of finding out the
type of bean seeds with the highest yield under particular weather and soil conditions. At the end of the experiment, the data collected was talbed as follows:

Seed type	No. of plots	Mean yield (kg)	Standard deviation (kg)	Coefficient of variation
A	10	?	6.4	16%
B	20	65	?	14%
C	?	25	5.0	?

If a total of 35 plots were involved, fill in the missing figures and state the more consistent seed type as far as yield is concerned. Provide your justification for the seed type selected **(6 Marks)**

Q3. A junior accountant was requested to prepare a frequency distribution of the daily sales of commodity W manufactured by the company. The following distribution is what the accountant prepared:

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Earnings (Sh 000s)	0-5	10-15	15-20	20-25	25-30	30-35	35-40
No. of days	2	6	8	12	14	5	3

i Compute the mean/average deviation of the displayed data **(5 Marks)**

ii Compute the standard deviation of the displayed data **(5 Marks)**

iii It was later discovered that there were some days whose revenues generated were between Shs. 35,000 and Shs. 40,000. With this information taken into account the lower quartile of the data was found to be Kshs. 14,375. Determine the number of days whose revenue fell between 35,000 and 40,000 and hence determine the upper quartile. **(10 Marks)**

Q4. A university is typically required to prepare budgets well in advance of actually receiving its revenues and incurring the expenditures. An important source of revenue is student tuition, which is obviously a function of the number of students enrolled. A university was having problems in preparing accurate budgets because past forecasts of the enrolment, made each February before the start of the academic year in September, were subject to considerable error. One aspect of the problem was determining the relationship between the number of applicants received by February 1 and the number of new students entering the university in the following September. The data tabulated below was collected on September actual registrations and February 1 applicants.

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	Number of applicants received by February 1 (hundreds)	Number of new students enrolled in September (hundreds)
19x0	28	24
19x1	26	20
19x2	28	18
19x3	28	22
19x4	36	32
19x5	36	33
19x6	42	34
19x7	46	34
19x8	46	35
19x9	50	38

Required:

i Determine the estimating regression equation to help forecast the number of students that will be enrolled in September **(12 Marks)**

ii Suppose 4.200 applicants are received by February 1, what is the best estimate based on the regression model of the number of new students who will be enrolled in the following September. **(2 Marks)**

iii Calculate the coefficient of correlation and coefficient of determination. By interpreting these two coefficients, can the university rely on the estimating regression model to predict the number of students who will enroll in September? **(6 Marks)**

END

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