



PAN AFRICA CHRISTIAN UNIVERSITY

MASTERS OF BUSINESS ADMINISTRATION

END OF TERM EXAMINATION

DEPARTMENT: BUSINESS

COURSE CODE: MBA507

COURSE TITLE: QUANTITATIVE ANALYSIS

EXAM DATE:

TIME:

INSTRUCTIONS

- Read all questions carefully before attempting.
- Question **One** is **compulsory** i.e Section **A** is **compulsory**
- Answer any **THREE** Questions in Section **B**
- Write your **student number** on the answer booklet provided

SECTION A: COMPULSORY 10 MARKS

QUESTION ONE

A small business is interested in establishing the relationship between the number of hits on its website (measured by number of visitors that have used the main menu) and the amount spent in website promotion (in shs 000).

The table below gives the figures for last six months

Month	Web hits	Website promotion (Ksh 000)
1	25	1.0
2	24	1.2
3	56	1.6
4	54	1.4
5	55	1.2
6	58	1.8

Required

- a) Calculate the product moment coefficient of correlation (4 Marks)
- b) Interpret your results (1 Mark)
- c) Determine the regression equation (4 Marks)
- d) Calculate the cost of website promotion if there are 70 web hits (1Mark)

SECTION B: SELECT ANY THREE QUESTIONS

QUESTION TWO

- a) In a choral competition 9 contestants were awarded marks in percentage using a music scoring grid by two assessors. The results obtained were given in the table below.

Contestants	1 st Assessor	2 nd Assessor
A	72	76
B	82	80
C	79	78
D	70	73
E	67	70
F	81	85
G	78	69
H	75	83
I	65	63

Required

- i. Determine the rank correlation coefficient (4 Marks)
- ii. Interpret your results (1 Mark)

- b) A manufacturing company is testing a plant for acceptance. For the plant to be accepted, the reflectometer reading should be 19.5 and above.

A random sample of 25 readings is taken and found to have a mean of 19.7 with a standard deviation of 1.5

Required

Test at 95% level of confidence whether the company should accept the new plant (5 Marks)

QUESTION THREE

The table below shows distribution of worker's on wages in Kenya shillings in a shoe factory. Use it and answer the questions that follow.

soda (cases)	220	230	250	240	250	240	260	230	220	260
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Required

- Using exponential smoothing, advise Tamu soda distributors on whether to use a smoothing constant of $\alpha = 0.1$ or $\alpha = 0.8$ in forecasting sales (7 Marks)
- Forecast sales of week 11 using the three week moving average (3 Marks)

QUESTION SIX

- A survey is conducted on citizens of a certain country to determine the annual per capita income. It is indicated that the annual income of the citizens is normally distributed with a mean of Shs. 980,000 and a standard deviation of Shs. 160,000. One citizen was randomly selected from the country.

Required

The probability that the annual income will be:

- Is greater than Shs. 500,000 (2 Marks)
 - Is greater than Shs. 1,220,000 (2 Marks)
 - Lies between Shs. 852, 000 and Shs. 1,110,000 (3 Marks)
- A company produces two types of electrical components whose information has been provided to you as follows.

	Component X	Component Y
Mean in hours	1,600	1,528
Standard deviation in hours	132	149
Sample size	120	110

Required

Determine whether the quality of the two electrical components differ significantly (use a significance level of 95%) (3 Marks)