



**PAN AFRICA CHRISTIAN UNIVERSITY**

**MASTERS IN BUSSINESS ADMINISTRATION**

**END OF TERM EXAMINATION**

**DEPARTMENT: BUSINESS**

**COURSE CODE: MBA 507**

**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**

### QUESTION ONE

The following table shows the number of years of experience of ten salespersons and the respective mean monthly sales realized by the salespersons.

Sales person	No. of years of experience	Mean monthly sales (Sh.)
1	6	180,000
2	4	150,000
3	2	80,000
4	10	500,000
5	7	190,000
6	4	100,000
7	6	200,000
8	7	220,000
9	12	600,000
10	8	200,000

#### Required

- a) Calculate the Pearson coefficient of correlation (8 Marks)
- b) Interpret your answer (2 Marks)

### SECTION B: ANSWER ANY THREE QUESTIONS

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## QUESTION TWO

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

### Required

Calculate the probability that the annual income of the citizen:

- (a) Is greater than Sh. 500,000 (3 Marks)
- i. Is greater than Sh. 1,220,000 (3 Marks)
- ii. Lies between Sh. 852,000 and Sh. 1,110,000 (4 Marks)

## QUESTION THREE

The table below shows the salaries earned by 104 employees in Excel Ltd. In the month of July 2022.

Monthly salary sh. "000"	No. of employees
10 and under 15	10
15 and under 20	34
20 and under 25	42
25 and under 30	6
30 and under 35	6
35 and under 40	4
40 and under 45	2

### Required

#### Calculate

- a) The mean monthly salary (2 Marks)
- b) The median monthly salary (3 Marks)
- c) The standard deviation of the monthly salary (5 Marks)

## QUESTION FOUR

A small business is interested in establishing the relationship between the number of hits in a website (measured by the number of visitors that have used the main menu) and the amount spend in website promotion (in SHS. “000”)

The table below gives the figures for the last six months.

Month	Website hits	Website promotions ( Kshs. “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

- a) Determine the regression equation (8 Marks)
- b) Predict how much it would cost if the website hits reached 150. (2 Marks)

## QUESTION FIVE

- a) Using an example differentiate between primary data and secondary data (4 Marks)
- b) Using an illustration in each case, describe THREE qualities of a good questionnaire (6 Marks)

## QUESTION SIX

- a) A manufacturing company is testing a plant for acceptance. For a plant to be accepted the mean reflector reading should be 19.5 and above. A random sample of 25 readings is taken and found to have a mean of 19.7 and a standard deviation of 1.5.

**Required**

Test at 95% level of confidence whether the company should accept the new plant. (3 Marks)

- b) The registrar of PAC university has observed that the grade point aggregate of the university's student is normally distributed with a mean of 2.75 and a standard deviation of 0.40.

**Required**

- i. The probability that a randomly selected student from the university has a grade point aggregate of between 2.00 and 3.00 (3 Marks)
- ii. Assuming that the university has a total of 10,000 students, determine the number of students having a grade point aggregate of 3.75 or higher (4 Marks)