



PAN AFRICA CHRISTIAN UNIVERSITY

MASTERS IN BUSSINESS ADMINISTRATION

END OF TERM EXAMINATION

DEPARTMENT: BUSINESS

COURSE CODE: MBA 507

COURSE TITLE: QUANTITATIVE ANALYSIS

AUGUST 2022

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

Twelve people of different ages (years) were given a memory test with the following results:

Age	70	68	62	53	46	35	28	25	22	20	18
Test score	48	50	60	55	62	74	69	78	82	80	93

Required

- Determine regression equation of test score against age in years.
(7 Marks)
- If a person aged 75 years, determine the expected test score (2 Marks)

- iii. If a person has a test score of 100%, determine the expected years (1 Mark)

SECTION B: ANSWER ANY THREE QUESTIONS

QUESTION TWO

- a) The probability that a student will pass a mathematics class is $\frac{2}{3}$ and the probability that he will fail and English exam is $\frac{5}{9}$. The probability that he will pass at least one exam is $\frac{4}{5}$.

Required

The probability that the student will pass both Maths and English exam (3 Marks)

- b) The mean weight of 500 packaging tins from a production process is normally distributed with a mean weight of 151 grams and a standard deviation of 15 grams.

Required

- i. The number of packaging tins that weigh between 120 grams and 155 grams (4 Marks)
- ii. The number of packaging tins that weigh more than 185 grams (3 Marks)

QUESTION THREE

- a) Winners traders has recorded the sales made during a particular day, and the results are given in the following table

Value of sales (Shs 000) (Class)	Number of sales (Frequency)
10 – 19	3
20 – 29	6
30 – 39	10
40 – 49	8
50 – 59	7
60- 69	9
70 – 79	4
80 – 89	7
90 -99	3

Required: Calculate the

- i. Mode for the distribution (2 Marks)
- ii. Median (2 Marks)
- iii. Mean (2Marks)
- iv. Standard deviation (4 Marks)

QUESTION FOUR

- 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) Research findings on computers suggest that the life span of personal computers fit a normal distribution with a mean of 4.2 years and a standard deviation of 0.8 years.

Required

- i. Determine the proportion of personal computers that will have a life span less than 4 years (3 Marks)
- ii. Determine the proportion of personal computers that will have a life span of between 3.4 years and 5.8 years. (4 Marks)

QUESTION FIVE

- a) A sample of 100 motorcar tyres has a mean of 20,000 km and a standard deviation of 800 km. A second sample of 150 tyres has a mean life of 22,000 km and a standard deviation of 900 km.

Required

Determine whether the two samples were drawn from the same population (5 Marks)

- b) A researcher reports that the average salary of assistant professors is more than £42,000. A sample of 30 assistant professors has a mean salary of £43,260 at $\alpha = 0.05$. The standard deviation of the population is £ 5,230.

Required

Test the claim that assistant professors earn more than £42,000 per year. (5 Marks)

QUESTION SIX

- a) The table below shows marks scored by 8 students in a mathematics and English test

Students	1	2	3	4	5	6	7	8
Marks scored in Mathematics	31	36	44	28	56	78	36	96
Marks scored in English	36	46	66	46	36	26	46	76

Required

The rank co-efficient of correlation. Interpret the results

(5 Marks)

- b) Ten entries in painting competition were ranked by two judges as shown below:

Entry	A	B	C	D	E	F	G	H	I	J
Judge 1	5	2	3	4	1	6	8	7	10	9
Judge 2	4	5	2	1	6	7	10	9	3	8
Judge 3	3	4	1	2	5	6	9	10	2	7

Required

Determine the rank coefficient of correlation. Interpret the results.

(5 Marks)