



KISII UNIVERSITY
UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF
MASTERS IN BUSINESS ADMINISTRATION
SECOND SEMESTER, 2021/2022
(JUNE-SEPTEMBER, 2022)

MBAD 781: QUANTITATIVE METHODS

STREAM: Y1 S2

TIME: 3 HOURS

DAY: MONDAY, 9:00-12:00 PM

DATE: 17/10/2022

INSTRUCTIONS

- 1. Do not write anything on this question paper.***
- 2. Answer Question ONE and any other THREE Questions.***

QUESTION ONE

- a) Most (if not all) economic decisions are the result of an optimization problem subject to one or a series of constraints. Give three examples of such decisions and constraints. (5marks)
- b) Dr. Onyango lectures Quantitative methods in Kisii University both at main campus and Eldoret campus. Main campus has 75% students and Eldoret campus has the remaining 25% students. First continuous assessment test was carried out and the results shows that 5% of students from main campus and 8% Eldoret campus failed the test respectively. A student is selected randomly, what is the probability that the student came from main campus, given that the student failed. (10marks)

QUESTION TWO

A consulting firm submitted a bid for a large consulting contract. The firm's management felt it had a 50-50 change of landing the project. However, the agency to which the bid was submitted subsequently asked for additional information. Past experience indicates that that for 75% of successful bids and 40% of unsuccessful bids the agency asked for additional information.

- a) What is the prior probability of the bid being successful (that is, prior to the request for additional information).

- b) What is the conditional probability of a request for additional information given that the bid will be ultimately successful?
- c) Compute the posterior probability that the bid will be successful given a request for additional information. (15 marks)

QUESTION THREE

The table below is Regression Coefficients for Strategic Control Practices on Organizational Performance

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	β	Std. Error	Beta			
(Constant)	-0.397	0.089		-4.465	0.000	
1	OBJ1	0.249	0.190	0.253	1.310	0.001
	OBJ2	-0.571	0.302	-0.573	-1.887	0.060
	OBJ3	1.595	0.263	1.603	6.070	0.000
	OBJ4	-0.380	0.225	-0.388	-1.689	0.092

a. Dependent Variable: PERFOR

Financial controls (OBJ1), Human resource controls (OBJ2), information and communication controls (OBJ3) and marketing controls (OBJ4) and organizations performance (dependent variable)

Required

- a) Come up with a regression model and explain the model.
- b) State hypotheses and make decisions. (15 marks)

QUESTION FOUR

- a) Give a detailed comparison between univariate and bivariate data (5 marks)
- b) Ten patients at a doctor's surgery wait for the following lengths of times to see their doctor.
 5 mins 17 mins 8 mins 2 mins 55 mins
 9 mins 22 mins 11mins 16 mins 5 mins
- i) What are the mean, median and mode for these data?
- ii) What measure of central tendency would you use here? Justify your choice. (10marks)

QUESTION FIVE

Given the pay-off table below showing the profit (present value Kshs in million), a firm might expect in a foreign country for three alternative factory investments (X, Y, and Z) under different levels of inflation. Economists have assigned probabilities of 0.2, 0.3, 0.4, and 0.1 to the possible inflation levels A, B, C and D, respectively.

Course of action	State of nature			
	A=2%	B=5%	C=10%	D=15%
Build factory X	10	30	50	120
Build factory Y	40	50	60	70
Lease Plant	10	40	80	10

Find the preferred investment alternative using criteria of (a) Laplace, (b) Hurwicz, and (c) Minimax regret Finally, (d) use your “judgment.”
(15 marks)

QUESTION SIX

The Medical Rehabilitation Education Foundation reports that the average cost of rehabilitation for stroke victims is \$24,672. To see if the average cost of rehabilitation is different at a large hospital, a researcher selected a random sample of 35 stroke victims and found that the average cost of their rehabilitation is \$25,226. The standard deviation of the population is \$3,251. At $\alpha = 0.01$, can it be concluded that the average cost at a large hospital is different from \$24,672?

(15 marks)