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KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY UNIVERSITY EXAMINATION, 2024/2025 ACADEMIC YEAR THIRD YEAR, SECOND SEMESTER EXAMINATION BACHELOR OF EDUCATION (ARTS) KMA 2115: BUSINESS STATISTICS

Date: 10th December 2024 Time: 11.30am-1.30pm

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS QUESTION ONE (30 MARKS)

a) Differentiate between the following terms

i)	Population and Sample.	(2 Marks)
ii)	Qualitative and Quantitative data.	(2 Marks)
iii)	Quota and cluster sampling.	(2 Marks)
b) State the	main characteristics of Statistics and its importance in Business.	(4 Marks)
c) Consider	the following data X= {11,13,15,16,19,22,13,20}	
Calcula	ate i) Harmonic mean ii) Geometric mean.	(4 Marks)
d) The heigh	nt of 20 students were given as follows	
	154,162,142,143,136,143,148,147,156,139,	
	144,151,143,143,164,147,139,157,153,149.	
	i) Construct a stem and leaf plot for this data.	(3 Marks)
	ii) Draw a box and whiskers plot for this data.	(3 Marks)

e) A study conducted at Kiriri University revealed that students who attended class 95 to 100% of the time usually received an A in the class. Students who attended class 80 to 90% of the time usually received a B or C in the class and Students who attended class less than 80% of the time usually received a D or an F or eventually left the class.

i)	What are	e the v	ariables under	study?					(1 1	Mark)	
ii)	Which ty	pes of	statistics are u	sed?					(1 1	Mark)	
iii)) What is	the po	opulation under	study?					(1 1	Mark)	
iv)) Was a sa	mple	collected? If so	, from wl	here?				(1 1	Mark)	
v)	From	the	information	given,	comment	on	the	relationship	between	the	variables.
									(1 M	Mark)	
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f) Twenty-five army inductees were given a blood test to determine their blood type. The data set is A, B, B, O, AB, O, O, O, B, AB, B, B, B, B, O, A, O, A, O, O, O, AB, AB, A, O, B, A

i)	Construct a frequency distribution for the data.	(2 Marks)
ii)	Draw a bar chart for this data.	(3Marks)

QUESTION TWO (20 MARKS)

Mr. Tom has 60 of salesmen in his business empire. He is interested in finding out the average sales they make and to do so he has tallied the number of sales each one makes and has grouped them as follows:

Number of	Number of
sales	salesmen
0-4	1
5-9	10
10-16	18
15-19	16
20-24	11
25 & above	4

a) Find

i)	the arithmetic mean of the sales for the salesmen.	(3 Marks)
ii)	the median.	(3 Marks)
iii)	Draw a histogram and estimate the mode.	(4 Marks)
iv)	State the advantages and disadvantages of these three (mean, m	ode, median) as measures of
	location.	(4 Marks)
v)	Draw the cumulative distribution curve for this data.	(3 Marks)
vi)	From v) above estimate the interquartile range.	(3 Marks)

QUESTION THREE (20 MARKS)

a) Students of a certain class were surveyed to find out the mode of transport they used when going to college. The results were:

Mode of transport	Number of students
Walking	9
Boda	10
Car	6
Matatu	15
	40

A student is picked at random,

i)	What is the probability that the	student comes to school by matatu.	(2 Marks)
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ii) What is the probability that the student comes to school by boda or matatu. (2 Marks)

iii) What is the probability that the student does not comes to school by walking. (2 Marks)

b) 100 students sat for a particular examination of which 60 were boys. The number of students who passed this examination was 40, of whom 20 were girls.

(3 Marks)

Present this information on a tree diagram.

Find the probability of:

i)	A student passing the examination.	(2 Marks)

ii) A girl passing the examination. (2 Marks)iii) A selected student who is a boy, failing the examination. (2 Marks)

c) Classify the following events as mutually exclusive, independent or conditional,

- i) The price of cooking oil rising in shops and floods in Budalangi. (1Mark)
- ii) Mr. Tom catching the ENA Coach from Kisumu to Nairobi and Flying 540. (1Mark)
- iii) Being the chief accountant and the height of the person. (1Mark)

iv) A consignment arriving late and the same consignment arriving on time from RSA.

(1Mark) (1Mark)

Age of person and being chief executive. v)

QUESTION FOUR (20 MARKS)

a) The following table give the major Kenyan imports and their cost (Ksh in billions) in the year 2022

Import	Ksh in Billions
Petroleum	597.7
Iron and Steel	150
Road motor vehicles	85
Industrial Machinery	308.5
Edible oils	145
Medicinal products	92.5
Plastics	101.3

- i) Present the information on a pie chart.
- Draw a bar graph for this information. ii)
- Give three ways on how the government minimize expenditure on these imports?(3 Marks) iii)

b) In a certain organization, the distribution of wages of 125 employees is given below

Income in	Ksh	15000	30000	45000	75000	120,000	1
Number	of	40	35	25	15	10	1
persons							1
raw a Lorenz Curve of the data given below. (5 M							

Draw a **Lorenz Curve** of the data given below. i)

ii) What is the distribution of wages in this company?

QUESTION FIVE (20 MARKS)

a) The manager of a certain company has been wondering whether or not there is a relationship between turnover and profit before tax. To confirm this, he has gone to past records and extracted turnover and profit figures as follows but he does not know how to use them to show the correlation: Turnover and profit before tax

	±			1		1	1			
Year		2005	2006	2007	2008	2009	2010			
Turnove	r (millions)		106	125	147	167	187	220		
Profit be	fore tax(million	s)	10	12	16	17	18	22		
i) I	Draw a scatter dia	agram and	l advise	the mana	ger on w	hat it rev	eals.	(3 Marks)		
ii) C	Calculate the corr	relation co	pefficien	t.				(4 Marks)		
b) i) V	b) i) What is an index number. (1 Mark)									
i) C	Give four examp	les of inde	ex numb	ers.				(2 Marks)		
ii) I	Describe any three	ee uses of	index n	umbers.				(2 Marks)		
c) A con	npany buys four	products v	with the	following	g charact	teristics:				
ITEMS	Number of u	nits bough	nt Pr	ice paid p	er unit F	Ksh				
	Year 1	Year 2	Ye	ear 1	Year	2				
А	A 20 24 2400 1320									
В	55 51 2760 3000									
С	63	84	20	2040 2040						
D	28	34	22	80	2400					

Find the simple price indexes for the products for year 2 using year 1 as the base year. i) (4 Marks)

(4 Marks) Find the simple aggregate index for year 2 using year 1 as the base year. ii)

(5 Marks)

(4 Marks)

(3 Marks)