KISII UNIVERSITY
UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD OF
THE DEGREE OF BACHELOR OF SCIENCE IN APPLIED STATISTICS

SECOND SEMESTER 2021/2022
(FEBRUARY-JUNE, 2022)

STAT 117: DEMOGRAPHY AND DYNAMIC STATISTICS

STREAM: Y1 S2 **TIME: 2 HOURS**

DAY: MONDAY, 12:00 PM – 2:00 9M **DATE: 20/05/2022**

INSTRUCTIONS:

1. ***Do not write anything on this question paper.***
2. ***Answer Question ONE (Compulsory) and any other TWO* Questions.**

QUESTION ONE 30 marks (Compulsory)

i) Define complete expectation of life. (2 marks)
ii) Name the major sources of Democracy. (4 marks)
iii) Name five qualities of a census. (5 marks)
iv) Name the four steps in conducting a census. (4 marks)
v) From the table given below, Calculate;
a) GFR (2 marks)
b) SFR (7 marks)
c) TFR (3 marks)
d) GRR (Assume that the proportion of female births is 46.2 %) (3 marks)

Age (Years)	**No. of Women ('000')**	**No. of Births**
15 - 19	19.0	290
20 - 24	19.4	2274
25 - 29	18.8	1924
30 - 34	18.2	1350
35 - 39	17.8	946
40 - 44	18.0	310
45 - 49	17.5	175
Total	128.7	7269

QUESTION TWO

i) Define Census. (2 marks)

ii) Name the two techniques of census taking and an advantage of each (6 marks)

iii) Calculate the GFR, TFR and GRR for the following data assuming that for every 100 girls 106 boys are born.

Age (yrs)	Number of women	Age - SFR	Number of births
15-19	212619	98.0	208836
20-24	198732	169.6	33705
25-29	162800	158.2	25755
30-34	145362	39.7	5771
35-39	128109	98.6	12632
40-44	106211	42.8	4546
45-49	86753	16.9	1466
	1040586	623.8	104711

a) GFR (4 marks)

b) TFR (4 marks)

c) GRR (4 marks)

QUESTION THREE

The following data shows the population of a country A

AGE GROUP	MALE		FEMALES	
	POPULATION	DEATH	POPULATION	DEATHS
< 5 years	45,000	360	70,000	1,000
5 - 30 years	50,000	400	82,000	1040
> 30 years	40,000	280	110,000	240
TOTALS	135,000	1,040	262,000	2,280

Calculate;

a) CDR (2 marks)

b) CDR for Males and females. Comment on the results. (5 marks)

c) Age Specific Death Rates for the population. (3 marks)

d) The population of two countries A and B and that of the standard population in terms of persons and deaths in the various age groups are given in the table below.

Age Group	A		B		Standard Population	
	Population	Deaths	Population	Deaths	Population	Deaths
< 20	20,000	600	12,000	372	15,000	400
20 - 40	12,000	240	30,000	660	28,000	520
40 - 50	50,000	1250	62,000	1612	58,000	880
50 - 60	30,000	1050	15,000	525	20,000	900
> 60	10,000	500	30,000	180	8,000	450

Calculate; the standardized Death rates of the two regions A and B. (10Marks)

QUESTION FOUR

Given the following table for l_x, complete the life table. (10 marks)

X	l_x	q_x	d_x	L_x	T_x	e_x^0	M_x
0	100	0.10	10				
1	90	0.11	10				
2	80	0.06	5				
3	75	0.20	15				
4	60	0.50	30				
5	30	1.00	30				
6	0	_	_				

X, Y and Z are three children aged 1, 2, and 3 respectively. Find from the life table data above the probability that;

a) At least one of them will be alive for one more year. (3 marks)

b) X, Y and Z will be alive in two years. (2 marks)

c) All will die in two years' time. (2 marks)

d) One of the three is alive in two years. (3 marks)