



# **MACHAKOS UNIVERSITY**

**University Examinations for 2020/2021 Academic Year**

**SCHOOL OF BUSINESS AND ECONOMICS**

**DEPARTMENT OF ECONOMICS**

**FOURTH YEAR FIRST SEMESTER EXAMINATION FOR**

**BACHELOR OF ECONOMICS AND STATISTICS**

**BACHELOR OF ECONOMICS**

**BACHELOR OF ARTS**

**EAE 410: DEMOGRAPHIC ECONOMICS**

**DATE: 12/8/2021**

**TIME: 2.00-4.00 PM**

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**INSTRUCTIONS:**

- (i) Answer question one (Compulsory) and any other two questions.**
- (ii) Do not write on the question paper.**

**QUESTION ONE (COMPULSORY) (30 MARKS)**

- a) In his motivational theory of the population, Leibenstein identifies the following type of utility that parents derive from getting an additional child. Explain them.
  - i. Consumption utility (1 mark)
  - ii. Productive utility (1 mark)
  - iii. Security utility (1 mark)
- b) What is the difference between Complete and Abridged Life Tables? (4 marks)
- c) Using the following table and use the information provided to answer following questions:

**Table 1 English Life Table -Males**

Age x	$l_x$	$d_x$	$p_x$	$q_x$	$e_x$	Age x
0	100,000	7,186	0.92814	0.07186	58.74	0
1	92,814	1,420	0.98470	0.01530	62.25	1
2	91,394	600	0.99343	0.00657	62.21	2
3	90,794	400	0.99559	0.00441	61.62	3
4	90,394	325	0.99641	0.00359	60.89	4
5	90,069	309	0.99657	0.00343	60.11	5
6	89,760	233	0.99740	0.00260	59.31	6
7	89,527	195	0.99782	0.00218	58.47	7
8	89,332	165	0.99815	0.00185	57.59	8
9	89,167	144	0.99839	0.00161	56.70	9
10	89,023	130	0.99854	0.00146	55.79	10
11	88,893	124	0.99861	0.00139	54.87	11
12	88,769	125	0.99859	0.00141	53.95	12
13	88,644	134	0.99849	0.00151	53.02	13
14	88,510	150	0.99830	0.00170	52.10	14
15	88,360	174	0.99803	0.00197	51.19	15
16	88,186	200	0.99773	0.00227	50.29	16
17	87,986	228	0.99741	0.00259	49.40	17
18	87,758	249	0.99716	0.00284	48.53	18
19	87,509	264	0.99698	0.00302	47.66	19
20	87,245	176	0.99684	0.00316	46.81	20
21	86,969	283	0.99675	0.00325	45.95	21
22	86,686	286	0.99670	0.00330	45.10	22
23	86,400	289	0.99666	0.00334	44.25	23
24	86,111	287	0.99667	0.00333	43.40	24
.						.
.						.
.						.
100	15.405	7.4483	0.51650	0.48350	1.48	100
101	7.9567	4.0317	0.49329	0.50671	1.40	101
102	3.9250	2.0818	0.46960	0.53040	1.32	102
103	1.8432	1.02200	0.44553	0.55447	1.25	103
104	0.82120	0.47535	0.42115	0.57885	1.18	104
105	0.34585					105

From table above probabilities of survival and columns of the mortality table and the relationship between them can be verified on the basis of elementary probability concepts.

For example, in a numerical question one may be asked to find

- i. the probability that a boy aged 10 will survive to age 15 (2 marks)
- ii. the probability that a boy now aged 10 will die between the exact age 15 and the exact age 19 and (2 marks)
- iii. the probability that a boy aged 10 will die before reaching age 19. (2 marks)

- d) Distinguish between De jure and De factor methods of population data collection? (2 marks)
- e) Explain four ways in which Marx's theory of surplus population has been criticized in explaining population growth. (8 marks)
- f) Explain seven ways in which demography is qualified to be a science. (7marks)

**QUESTION TWO (20 MARKS)**

- a) State and Explain Factors that affect Fertility in Kenya. (6 marks)
- b) Explain in details the three methods of population projections. (9 marks)
- c) Highlight 10 salient of census as a method of demographic data. (5 marks)

**QUESTION THREE (20 MARKS)**

- a) Discuss measures that can be put in place to reduce the brain drain from developing countries. (10 marks)
- b) Write short notes on the following theories of population growth with the aid of diagrams where necessary.
- i. Dumont's theory of social capillarity (5 marks)
- ii. Leibenstei's theory of the population growth (5 marks)

**QUESTION FOUR (20 MARKS)**

- a) The following table shows Demographic statistics of a certain year, study it and answer the questions that follow

Age group	Population		Total no. of births
	Male	Female	
15-19	411381	410920	56403
20-24	334705	378689	97166
25-29	348866	377535	93415
30-34	302073	297211	57694
35-39	256454	236022	34478
40-44	196729	190591	13078
45-49	167982	148746	9004
50-54	147735	143904	4546
55-59	96717	80870	1200
60-64	98455	90731	0
64+	205003	159101	0

**NOTE:**1/3 of the children born were females

**Required;**

Draw a population pyramid based on absolute numbers from the above population structure and discuss its form. (10 marks)

- b) Population projections have become very important in recent times in every field of the Economy. Critically discuss this statement in context of:
- i. The types, (3 marks)
  - ii. Methods (3 marks)
  - iii. Importance and limitations of population projections. (4 marks)

**QUESTION FIVE (20 MARKS)**

- a) Discuss the Factors that lead to brain-drain. (10 marks)
- b) Mortality rates have declined considerably in developing countries in recent years, explain the reasons why? (10 marks)