



# MACHAKOS UNIVERSITY

University Examinations for 2018/2019 Academic Year

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF ECONOMICS

THIRD YEAR SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF ECONOMICS & FINANCE

BACHELOR OF ECONOMICS & STATISTICS

EAE 410: DEMOGRAPHIC ECONOMICS

DATE:

TIME:

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## **INSTRUCTIONS:**

- (i) Answer question one (Compulsory) and any other two questions
- (ii) Do not write on the question paper
- (iii) Show your working clearly

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

- a) Distinguish between the following demographic concepts:
- (i) Demography and Demographics (2 marks)
  - (ii) Fertility and Reproduction (2 marks)
  - (iii) Marriage and Nuptiality (2 marks)
- b) (i) The total population aged 0-14 as enumerated in Kenya 1980 census was 5,404,291; those aged 65 years and over were 465,465 and those between 15 and 64 years was 3,766,556. Calculate the dependency ratio (3 marks)
- (ii) State four traditional sources of population statistics (4 marks)

- c) The following table shows demographic statistics of a certain country in a year; study it and answer questions that follows:

|           | Population |         |                     |
|-----------|------------|---------|---------------------|
| Age group | Male       | Female  | Total No. of Births |
| 15-19     | 411,381    | 410,920 | 56,403              |
| 20-24     | 334,705    | 378,689 | 97,166              |
| 25-29     | 348,866    | 377,535 | 93,415              |
| 30-34     | 302,073    | 297,211 | 57,694              |
| 35-39     | 256,454    | 236,022 | 34,478              |
| 40-44     | 196,729    | 190,591 | 13,078              |
| 45-49     | 167,982    | 148,746 | 9,004               |
| 50-54     | 147,735    | 143,904 | 4,546               |
| 55-59     | 96,717     | 80,870  | 1,200               |
| 60-64     | 98,455     | 90,731  | 0                   |
| 64+       | 205,003    | 153,101 | 0                   |

Note: 1/3 of children born were females

### Required

- (i) Gross Reproduction Rate (6 marks)
- (ii) General Fertility Rate (4 marks)
- (iii) Draw a population pyramid based on absolute numbers from the above population structure and discuss its form (7 marks)

### QUESTION TWO (20 MARKS)

- a) In 1960, the population of Zambia was recorded as 6,726,815. In 1970 the count indicated a population of 8,545,561. What is the rate of annual growth from 1960 to 1970? (4 marks)
- b) Explain positive effects of population growth on economic development of a developing country (10 marks)

c) Components of Population Growth is as given in the table below

| Item                      |                      |
|---------------------------|----------------------|
| Population 1 January 1970 | 10,554 ( $P_t$ )     |
| During 1970               |                      |
| Births                    | +456                 |
| Deaths                    | -215                 |
| Immigrants                | +145                 |
| Emigrants                 | -40                  |
| Population 1 January 1971 | 10,900 ( $P_{t+1}$ ) |

Calculate the rate of natural increase

(6 marks)

### QUESTION THREE (20 MARKS)

a) A group of 200 subjects were followed for three years. Deaths occurred throughout the three years. Use a life table to show the chance of surviving at the end of the three years given that: Number at beginning of first year was 200 and deaths were 20. In the second year deaths were 30 and in the fourth year deaths were 40. Also calculate the cumulative probability of surviving. (5 marks)

b) You are given the below information concerning marriage in Kenya:

| Age group | 1 st Marriages | Population |
|-----------|----------------|------------|
| -20       | 311233         | 32885000   |
| 20-24     | 346361         | 6875000    |
| 25-29     | 161086         | 6362000    |
| 30-34     | 61085          | 5443000    |
| 35-39     | 29653          | 4479000    |
| 40-44     | 16503          | 3590000    |
| 45+       | 25315          | 12735000   |

Calculate total first marriage rate

(5 marks)

c) Explain classical demographic transition model in low income countries (10 marks)

#### **QUESTION FOUR (20 MARKS)**

- a) Explain three methods of population projection (6 marks)
- b) Distinguish between historical calendar and cohort identification methods of measuring age. (4 marks)
- c) How long will it take for Kenya's population of 6.73 million, recorded in 1960, to double at 2.4 percent per annum? (3 marks)
- d) Mortality rates have declined considerably in developing countries in recent years, explain the reasons why? (7 marks)

#### **QUESTION FIVE (20 MARKS)**

- a) "Brain drain is becoming a serious problem in many developing countries" Discuss this statement by stating your understanding of brain drain, its causes and suggest measures to stop it. (10 marks)
- b) Explain two types of life tables (4 marks)
- c) Explain two methods of measuring age in Africa giving weaknesses of each method (6 marks)