



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND
TECHNOLOGY.
UNIVERSITY EXAMINATIONS FOR MASTER OF SCIENCE IN
EPIDEMIOLOGY AND BIostatISTICS/BIOMEDICAL/MPH.
1ST YEAR 1ST SEMESTER 2023/2024 ACADEMIC YEAR
KISUMU CAMPUS**

COURSE CODE: HES 5112
COURSE TITLE: DEMOGRAPHY AND HEALTH
EXAM VENUE: STREAM: (MSc/MPH)
DATE: EXAM SESSION:
TIME: TIME ALLOWED: 3.00 HOURS

Instructions:

1. Answer **QUESTION ONE** and **THREE** other questions.
2. Candidates are advised not to write on the question paper
3. Candidates must hand in their answer booklets to the invigilator while in the examination room.

Answer **QUESTION ONE** and **THREE** other questions

1 (a) One of the preventive measures advanced in Malthusian Population Growth Theory is discouraging early marriages. By highlighting different scenarios in Kenya, discuss what the government and other players have put in place in this regard (10 marks).

(b) Consider community Y with census data at two different points in time.

| <u>Time</u> | <u>Population</u> |
|-------------------------------|-------------------|
| August 9 th , 1980 | 19,466,560 |
| August 9 th , 1990 | 27,533,203 |

Use the given data to estimate:

- i. Total population growth (1 mark)
- ii. Intercensal time period (1 mark)
- iii. Annual growth (1 mark)
- iv. Arithmetic growth rate (1 mark)
- v. Geometric growth rate (1 mark)

2 (a) Explain the following demographic indicators of mortality:

- i. Infant Mortality Rate (2 marks).
- ii. Maternal Mortality Rate (2 marks).
- iii. Abortion Rate (2 marks).
- iv. Abortion Ratio (2 marks).

(b) (i) Between 1940 and 1949, a total of 143,497 incident cases of diphtheria were reported. During the same decade, 11,228 deaths were attributed to diphtheria. Estimate the death-to-case ratio. (2 marks)

(ii) In 2001, a total of 15,555 homicide deaths occurred among males and 4,753 homicide deaths occurred among females. The estimated mid-year populations for males and females were 139,813,000 and 144,984,000 respectively. Estimate the ratio of homicide-mortality rates for males compared to females. (2 marks)

(iii) Interpret the rate you calculated in (ii) as if you were presenting information to a policy maker (3 marks).

3. In Demographic and Health Surveys (DHS), a variety of data sources can be employed to generate data to health planning, and the implementation, monitoring and evaluation of health programs in developing countries.

- i. Explain what precedes data collection (5 marks).

ii. Describe process of data collection for various health indicators of public health interest. (5 marks).

iii. Highlight limitations of Demographic and Health Surveys (5 marks).

4. Monitoring, surveillance and investigation of health threats are vital capabilities of an effective health system. Explain the following surveillance systems:

i. Clinical and laboratory-based surveillance (5 marks).

ii. Sentinel surveillance (5 marks).

iii. Community-based surveillance and investigations (5 marks).

iv. Comprehensive surveillance systems (5 marks).

5. (a) Discuss census as a data source in demographic analysis (8 marks)

(b) Two items listed are some of the recommendations for countries who are planning to develop National Burden of Disease Studies,

i. Define the objective of burden of disease study with the context of your country.

ii. Identify, communicate and secure the benefits of performing national burden of disease studies.

Explain the importance of undertaking the two recommendations (7 marks).