

Paper 1

**TECHNICAL UNIVERSITY OF MOMBASA**  
**FACULTY OF APPLIED AND HEALTH SCIENCES**  
**DEPARTMENT OF ENVIRONMENT & HEALTH SCIENCES**  
**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF**  
**SCIENCE IN COMMUNITY HEALTH**  
**BSCH 013S/YEAR3/ SEMESTER2**  
**APH 4308: POPULATION HEALTH**  
**SEMESTER EXAMINATION**  
**SERIES: APRIL/MAY 2016**  
**TIME: 2 HOURS**

*Instructions to Candidates*

This paper consists of FIVE questions

Answer question ONE (COMPULSORY) and any other TWO questions.

*This paper consists of two printed pages*

**Question ONE**

- (a) Define the following terminologies as used in human population.
- (i) Demography (1 mark)
  - (ii) Population Density (1 mark)
- (b) State Four causes of Population growth (2 marks)
- (c) Distinguish between the concepts of Fecundity and Nuptiality in population dynamics. (2 marks)

- (d) The averages total population for Maporomokoni Village in 2010 was 6000 (3500 female and 2500 male). In the same year 300 people died (100 female and 200 male). Calculate the mortality rate (crude death rate) for both female and male. (3 marks)
- (e) Explain Three indicators of mortality levels and trends. (3 marks)
- (f) State Six main sources of demographic data. (3 marks)
- (g) Explain the meaning of the following terminologies.
- (i) Generally Fertility Rate (GFR). (2 marks)
  - (ii) Age specific fertility rates (ASFR). (2 marks)
- (h) Explain the significance of mortality data (3 marks)
- (i) Briefly explain the beneficial effects of urbanization. (4 marks)
- (j) State Four uses of rates in the Public Health. (4 marks)

### Question TWO

**Table 1: HIV mortality and estimated population by age group overall and for black males, North American Country 1854**

Age group Years	All races, All ages		Black males	
	HIV Deaths	Population (x 1,000)	HIV Deaths	Population (x 1,000)
0-4	191	18,252	47	1,393
5-14	47	34,146	7	2,697
15-24	492	38,252	145	2,740
25-34	5,026	43,315	1,326	2,549
35-44	4,794	34,305	1,212	1,663
45-54	1,838	23,276	395	1,117
55	1,077	51,855	168	1,945
Unknown	3		1	
<b>Total</b>	<b>13,468</b>	<b>243,401</b>	<b>3,301</b>	<b>14,104</b>

A total of 2,121,323 deaths were recorded in a North America country in 1987. The mid-year population was estimated to be 243,401,000. HIV-related mortality and population data by age for all residents and for black males are shown in **Table 1** above. Use the data to calculate the following mortality rates.

- a). Crude mortality rate (4marks) b). HIV  
 (cause) – specific mortality rate for the entire population. (4marks)
- c). HIV-related mortality rate among 35 to 44 years olds. (4marks)

d). HIV-related mortality rate among 35 to 44 years old black males (4marks)

e). Explain why rates are useful in population health. (4marks)

### Question THREE

(a) Describe how Age-sex structure (population pyramid) of a population determines the needs of a population. (15 marks)

(b) Explain the difference between demography and population studies. (5 marks)

### Question FOUR

(a) The following below shows appropriate population data for Kakamega Province for the calendar year 1982 (all figures are in thousands)

Population beginning of	1982	227,651
Population at the end of	1982	229,949
Births during	1982	3975
Deaths during	1982	2112

By showing working at every stage, calculate the following. (12 marks)

- (i) Growth increase during 1982
- (ii) Natural increase during 1982
- (iii) Net migration
- (iv) Estimates midyear population 1982
- (v) Crude birth rate
- (vi) Crude death rate\crude rate of natural increase
- (vii) Crude growth rate

(b) Describe strategies which can be adopted by the Kenyan government to reduce maternal mortality. (8 marks)

### Question FIVE

(a) Describe the demographic variables that have a great impact on the chances of survival of infants and young children in Kenya. (10 marks)

(b) Give an account of two patterns of population growth forms. (10 marks)

Paper 2

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**Question ONE**

- a). Define the following terminologies as used in population health [4 mark]
- i. Crude death rate
  - ii. Maternal mortality Rate (MMR)
  - iii. Case fertility Rate
  - iv. Gross-Reproduction Rate (GRR)
- b). Explain the differences between demography and population health[4 marks]
- c). Outline the consequences of migration in population [4 marks]
- d). Identify SIX  
likely determinants of low fertility rate in Kenya [ 3 marks]
- e). State the objectives of population health [3 marks]
- f). Explain why women in Kenya outlive men this era [4 marks]

g). In 1987, a total of 12,088 HIV-related deaths occurred in males and 1,380 HIV-related deaths occurred in females. The estimated 1987 midyear population for males and females was 118,531,000 and 124,869,000 respectively. (4 marks)

- (a) Calculate the HIV-related death rate for males and females.
- (b) What type of mortality rates did you calculate in step a?
- (c) Calculate the HIV-mortality rate ratio for males versus females

### **Question TWO**

The Kenyan government uses various methods of measuring fertility changes which takes place in the population. The aim is to determine fertility levels in whole or segments of the population. Discuss the factors that are responsible of determining fertility levels. (20 marks)

### **Question THREE**

Discuss the demographic transition model that explains population dynamics. (20 marks)

### **Question FOUR**

a). Describe strategies which can be adopted by the Kenyan government to reduce maternal mortality. (8 marks)

b). The following data was collected from shimoni village to reflect the health of the residents.

Total population -2500

Population of infants-70

And numbers of still births (10) + live (80) in one year.

Total births are 90

Infant deaths -10 (neonatal =2, post-neonatal=8)

Under five deaths-14

Maternal deaths -2

Total deaths in one year-25

Using the above information, calculate the following: (12 marks)

- i. Still birth ratio
- ii. Still birth rate
- iii. Perinatal mortality
- iv. Neonatal mortality rate

- v. Neonatal mortality rate
- vi. Maternal mortality rate
- vii. Maternal mortality ratio
- viii. Crude death rate

**Question Five**

- (a) Briefly describe FIVE theories that explore the causes of migration [7.5 marks]
- (b) Discuss the health implications of the current international migration trends [12.5 marks]