



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Applied and Health Sciences

Department of Environment & Health Sciences

UNIVERSITY EXAMINATION FOR:

**BACHELOR OF SCIENCE IN COMMUNITY HEALTH AND BACHELOR
OF SCIENCE IN ENVIRONMENTAL HEALTH**

BSCH & BSEH 16S/YEAR 2/SEMESTER 1

APH 4206: PRINCIPLES OF EPIDEMIOLOGY

SPECIAL/ SUPPLEMENTARY EXAMINATIONS

SERIES: SEPTEMBER 2018

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 three printed pages.

Mobile phones are NOT allowed in the examination room

QUESTION ONE (30 MARKS)

- a) Explain what is meant by the components of the definition of epidemiology (4 marks)
- b) List four situations in which a randomized clinical trial could be considered unethical (4 marks)
- c) Explain the differences between randomized clinical trials and community trials (2 marks)
- d) Discuss five uses of epidemiology (5 marks)
- e) The following data regarding alcohol drinking status among persons in Kilifi County were reported for 2012:

	Number in thousands	
	All persons 18 years of age and older	Current regular alcoholic beverage drinkers
Male	104,919	59,300
Female	112,855	44,373

- i) State the sex ratio of male to female regular alcoholic beverage drinkers? (3 marks)
- ii) What proportion (percent) of regular alcoholic drinkers are women? (3 marks)
- iii) What is the prevalence per 1,000 of regular alcoholic beverage drinking among:
1. Men only (1 mark)
 2. Women only (1 mark)
 3. The total population aged 18 and older (1 mark)
- f) Subclinical cases have always posed a problem in investigating the etiology of both infectious and non-infectious diseases. Discuss the reasons for this (6 marks)

QUESTION TWO (20 MARKS)

In study in Kwale County, the incidence of stroke measured in 118,539 women who were 30-55 years of age and free from coronary heart disease, stroke and cancer in 1976 (see the table below). A total of 274 stroke cases were identified in 8 years of follow-up (908,447) person-years

<i>Relationship between cigarette smoking and incidence rate of stroke in a cohort of 118,539 women</i>			
Smoking category	# of cases of stroke	Person-years of observation (over 8 years)	Stroke incidence rate (per 100,000) person-years
Never smoked	70	395,594	
Ex-smoker	65	232,712	
Smoker	139	280,141	
Total	274	908,447	

- a. What is the prevalence of stroke in the women involved in this study (2 marks)
- b. Calculate the overall incidence of stroke and in each smoking category in this study (4 marks)
- c. What type of epidemiological study design was employed in this study (2 marks)

d. Describe the advantages of the study design employed in this study (6 marks)

e. Describe the disadvantages of the study design employed in this study (6 marks)

QUESTION THREE (20 MARKS)

The housefly feeds on typhoid bacilli-infected excreta in the latrines/toilets and is able to carry such excreta from sick to the healthy. In a city with stable population; the latrines were open and accessible to the housefly. In a period of a few months toward the end of the year, the latrines were all made fly proof. The number of cases listed in the table below of typhoid fever occurred in the city the year before and the year after the latrines were made fly proof, by month

Month	Typhoid cases occurring before fly proofing	Typhoid cases occurring after fly proofing
January	8	9
February	0	5
March	4	7
April	6	4
May	41	11
June	41	18
July	109	10
August	82	5
September	14	7
October	15	8
November	7	2
December	2	4
Total	329	90

a) Which study design was applied in the study above (4 marks)

b) What are your reasons for the study design in (a) above (4 marks)

c) What inferences would you derive from these data (6 marks)

d) Are there any additional data that you would like to have before deriving any inferences?
If so, list the kind of data (6 marks)

QUESTION FOUR (20 MARKS)

Use the Agent-host-environment model to describe the role of human immunodeficiency virus (HIV) in AIDS (20 marks)

QUESTION FIVE (20 MARKS)

a) Select a health problem or disease with which you are familiar. Describe the occurrence in terms of person, place and time (10 marks)

i) Person

ii) Place

iii) Time

b) Discuss the role epidemiology in the control and prevention of HIV (10 marks)