



# MACHAKOS UNIVERSITY

University Examinations 2019/2020 Academic year

SCHOOL OF HEALTH SCIENCES

DEPARTMENT OF PUBLIC AND COMMUNITY HEALTH

SECOND YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN PUBLIC HEALTH.

HPH 213: EPIDEMIOLOGY

DATE: 24/11/2020

TIME: 8:30 – 10:30 AM

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## INSTRUCTIONS

This paper consists of two sections A and B

### SECTION A

- This section has one question
- The question is compulsory
- The question is 30 marks

### QUESTION ONE (30 MARKS)

- Highlight the importance of the study of epidemiology to a public health officer (3 marks)
- Giving relevant examples, differentiate between endemic, epidemic and pandemic (3 marks)
- Outline three (3) uses of morbidity data to an epidemiologist (3 marks)
- Explain why retrospective studies are characterized by minimal attrition problems (3 marks)
- State three (3) reasons why secondary disease prevention is important (3 marks)
- Explain the relationship between acute diseases and prevalence (3 marks)
- Differentiate between a ratio, a proportion and a rate (3 marks)
- Distinguish between secular and cyclic trends in disease occurrence (3 marks)
- Explain the advantages of case control studies (3 marks)
- Highlight six (6) factors that decrease the prevalence rates of a disease (3 marks)

**SECTION B: Answer Any Two Questions. Each Question Contains 20 Marks**

- **This section has four (4) questions**
- **Answer any two (2) questions**
- **Each question is 20 marks**

**QUESTION TWO (20 MARKS)**

- a) A total of 5856 children below five years were screened at the beginning of January 2009 and 1464 of them were confirmed to be goiter cases. During the month of January 2009 after screening, 355 of children died out of which 36 were among those who had goiter. The children were followed up for a period of one year. In December 2009, an additional 732 under-fives were confirmed as new goiter cases. Showing all your working
- Calculate the prevalence of goiter in the beginning of January and in December 2009? (8 marks)
  - What was the incidence rate of goiter between February and December of 2009? (2 marks)
  - What was the cause specific death rate (CSDR) for goiter that year? (2 marks)
- b) Discuss the criteria that must be met for an agent to cause a disease (8 marks)

**QUESTION THREE (20 MARKS)**

- a) Discuss Five (5) characteristics of the person as a variable in disease occurrence (10 marks)
- b) Giving relevant examples, describe the natural history of a disease (10 marks)

**QUESTION FOUR (20 MARKS)**

- a) Explain the variations in disease occurrence and frequency using the host, agent and environment model (10 marks)
- b) Giving relevant examples discuss the importance of assessing population characteristics before the formulation of a government health policy (10 marks)

**QUESTION FIVE (20 MARKS)**

- a) You have been hired as a Public health officer and are in charge of the disease prevention unit in the county. Describe some of the primary disease prevention strategies you would put in place. (10 marks)
- b) Explain the sources of bias in the use of data obtained from hospital records. Suggest ways of reducing biases (10 marks)