

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF PUBLIC HEALTH

PUHE 324: EPIDEMIOLOGY AND DEMOGRAPHY FOR PUBLIC HEALTH

STREAMS: PUHE (Y3S2)

TIME: 2 HOURS

DAY/DATE: MONDAY 14/04/2025

8.30 A.M. – 10.30 A.M.

INSTRUCTIONS

1. Do not write anything on the question paper.
2. Mobile phones and any other reference materials are NOT allowed in the examination room.
3. The paper has three sections. Answer ALL questions in Sections I, II and III.
4. All your answers for Section I (MCQs) should be on one page.
5. Number ALL your answers and indicate the order of appearance in the space provided in the cover page of the examination answer booklet.
6. Write your answers legibly and use your time wisely

SECTION 1: MULTIPLE CHOICE QUESTIONS [10 MARKS]

1. Disease screening can best be categorized as
 - [a]. Primordial prevention
 - [b]. Primary prevention
 - [c]. Secondary prevention
 - [d]. Tertiary prevention
2. The severity of a diseases after infection has occurred is usually referred as
 - [a]. Virulence
 - [b]. Pathogenicity
 - [c]. Infectivity
 - [d]. Immunogenicity

3. _____ is a disease which a high prevalent infection begins early in life and affects most of the child population, leading to a state of equilibrium such that the adult population shows evidence of the disease much less commonly than do children.

- [a]. Endemic
- [b]. Hyperendemic
- [c]. Holoendemic
- [d]. Epidemic

4. Who among the following pioneers of epidemiology is usually referred to as the father of field epidemiology

- [a]. John Graunt
- [b]. William Farr
- [c]. John Snow
- [d]. Edward Jenner

5. In the tertiary level of disease prevention, any restriction or lack of ability to perform an activity in the manner or within the range considered normal for the human being is usually referred as

- [a]. Disability
- [b]. Handicap
- [c]. Rehabilitation
- [d]. Impairment

6. The pattern of a health-related event is described by the following, EXCEPT

- [a]. Person
- [b]. Number
- [c]. Time
- [d]. Place

7. _____ is the ability to produce results under ideal conditions.

- [a]. Efficacy
- [b]. Effectiveness
- [c]. Efficiency
- [d]. Potency

8. Analytic epidemiology usually answers the questions

- [a]. Why and How
- [b]. What and Why
- [c]. Where and When
- [d]. When and How

In questions 9 and 10, indicate whether the statement is TRUE or FALSE.

9. Event-based surveillance entails the regular identification, collection, monitoring, analysis and interpretation of structured data, such as indicators produced by well-identified, mostly health-based formal sources [True/False]

10. A component cause is a factor or more, usually a combination of several factors, that will inevitably produce disease [True/False]

SECTION II: SHORT ANSWER QUESTIONS [40 MARKS]

1. Define the following terms

- [a]. Determinant [2 marks]
- [b]. Case definition [2 marks]

2. Using a table for ease of comparison, outline three (3) key differences between basic reproductive number and effective reproductive number as used in the study of diseases [6 marks]

3. Outline five (5) epidemiological factors associated with a disease epidemic [5 marks]

4. Epidemiology has a wide range of uses in public health and beyond. Using relevant practical examples, explain five (5) key applications of epidemiology. [5 marks]

5. The natural history of a disease refers to the sequence of events that happen, one after another, over a period of time, in a person who is not receiving treatment. Using an infectious disease of a choice as an example, explain the main events that occur in the natural history of a communicable disease [10 marks]

6. A study enrolled 1,500 women in a study and followed them annually for four (4) years to determine the incidence rate of diabetes. After one (1) year, none had a new diagnosis of diabetes, but 50 had been lost to follow-up. After two (2) years, one (1) had a new diagnosis of diabetes, and another 49 had been lost to follow-up. After three (3) years, another 5 had new diagnoses of diabetes, and 295 had been lost to follow-up. After four (4) years, another 5 had new diagnoses with diabetes, and 195 more had been lost to follow-up.

Calculate the incidence rate of diabetes among this cohort. Assume that persons with new diagnoses of diabetes and those lost to follow-up were disease-free for half the year, and thus contribute $\frac{1}{2}$ year to the denominator. [10 marks]

SECTION III: LONG ANSWER QUESTIONS [20 MARKS]

1. Epidemiologists usually rely on specialized research methods to study the patterns, causes, and outcomes of health and disease in the populations. These methods are broadly classified as either observational or experimental designs, with observational studies further classified into descriptive and analytical designs. Discuss the structure, advantages and disadvantages of four (4) different common descriptive study designs commonly used in epidemiology. [20 marks]

.....