



WI-2-60-1-6

JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

UNIVERSITY EXAMINATIONS 2023/2024

SUPPLEMENTARY/SPECIAL EXAMINATION FOR THE DEGREE OF MASTERS

PPH 3100/TID 3101: PRINCIPLES OF EPIDEMIOLOGY/EPIDEMIOLOGY

DATE: MAY/JUNE 2024

TIME: 3 HOURS

INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS

- 1a). What is the importance of mortality measures to an epidemiologist? (10 Marks)
- 1b). In January 2019 in a community of 100,000 persons of all ages, 1% of its inhabitants had diabetes. In the course of the year 2019, 100 persons died due to this condition. During the same year, the incidence of diabetes was 0.1%. Assume in 2019 in this community, there were hardly any births or migrations to affect the population size.
- What is the point prevalence of diabetes at the end of the year 2019 as Odds? (2 Marks)
 - How many incident diabetic cases occurred in this population during the year 2019? (2 Marks)
 - What is the period prevalence for diabetes (as a proportion) from January to December 2019? (2 Marks)
 - What is the diabetic case fatality (as a percent) in this community during the year 2019? (2 Marks)
 - What is the mortality rate for diabetes (per 1,000 population) during the year 2019? (2 Marks)
- 1c). Briefly discuss the purpose of a standardized mortality ratio (SMR) including its advantages? (5 Marks)
- 2a). Why is it important to study the natural history of a disease? (4 Marks)
- 2b). With relevant examples, show how a person can lose susceptibility to an infectious agent? (6 Marks)
- 2c). In your own words, what do you understand by the term "carrier". Briefly describe properties of a carrier (15 Marks)
- 3a). John Snow is sometimes referred to as the father of epidemiology. Discuss John Snow's contribution to modern epidemiology. (15 Marks)
- 3b). Compare and contrast the two broad categories of analytic studies. (10 Marks)
- 4a). Epidemiology plays a vital role in policy evaluation. Discuss how the field of epidemiology might inform policy evaluation of laws that regulate drunk driving. (15 Marks)

- 4b). Under what circumstances can epidemic occur in a given population [6 marks]
- 4c). A test X is used to screen women of reproductive age for Human Papilloma Virus (HPV). The sensitivity of test X is 95% while the specificity is 90%. In a HPV screening program, 50,000 women of reproductive age were screened using test X. Assuming that, the true prevalence of HPV in the population screened is 100 per 50,000. Calculate
- Positive predictive value for test X (2 Marks)
 - Negative predictive value for test X (2 Marks)
- 5a). Distinguish between screening and diagnosis and briefly discuss the goals of screening (15 Marks)
- 5b). Discuss the properties and uses of incidence rates (10 Marks)
- 6a). Using relevant examples, what is your understanding of tertiary prevention? (5 Marks)
- 6b). Briefly describe objectives of primary prevention? (5 Marks)
- 6c). Discuss ecological studies (15 Marks).