



WI-2-60-1-6

JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS 2017/2018
SPECIAL/SUPPLEMENTARY EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN PUBLIC HEALTH/ COMMUNITY
HEALTH/HEALTH RECORDS&INFORMATICS
IPH2305/ICH2206/MLS2405 EPIDEMIOLOGY

DATE: OCTOBER 2018

TIME: 3 HOURS

INSTRUCTIONS: ANSWER ALL QUESTIONS IN SECTION A AND ANY ONE QUESTION IN SECTION B.

SECTION A (48 MARKS)

- Q1. Describe the uses of epidemiology in health practices. [6 marks]
- Q2. Discuss the types of prevalence and incidence rates [6 marks]
- Q3. Discuss the major factors that determine the prevalence of a disease in a population. [6 marks]
- Q4. Explain the following aspects of epidemiology [2 marks]
 - i. Case fatality rate [2 marks]
 - ii. Cause specific mortality rate [2 marks]
 - iii. Annual mortality rate [2 marks]

Q5. Use the information below to answer the following questions.

	Diseas		
	-	+	
+	98	3	101
-	2	97	99
	100	100	110

Calculate sensitivity, specificity, positivity, predictive value, negative predictive values of diagnostic and screening test. [6 marks]

Q6. You are a public health official in a medium-sized city with several large industrial enterprises. The workers in these enterprises are provided with medical care through a uniform insurance system, which means that all current and retired workers are likely to get health care from the same hospital. A hospital doctor calls you and expresses concern about the large number of lung cancers among the workers. How would you design an initial study to investigate potential associations between occupational exposures and increased risk of lung cancer? [6 marks]

Q7. Using a sketch diagram, illustrate the basic study design of a prospective cohort study. [6 marks]

Q8. In a cohort study evaluating radiation exposures, 100 tumours developed among 2000 exposed individuals and 80 tumours developed among 8000 unexposed individuals within the observation period.

i. Calculate the relative risk of tumours among the population. (2marks)

ii. Calculate Odds ratio $\frac{1}{20} + \frac{1}{100}$ (2marks)

iv. Interpret the Odds ratio $\frac{5+1=6}{100-50} = \frac{6}{50}$ (2marks)

960
2000

24
22

SECTION B: ANSWER ONLY ONE QUESTION

SECTION B: [22 MARKS]

Q9. Discuss the following study designs:

- a) Case-control (6 marks)
- b) Cross sectional (5 marks)
- c) Randomized trials (5 marks)
- d) Cohort retrospective (6 marks)

Q10. Describe the various modes of transmission of infectious agents (22 marks)

Q11. Using relevant examples describe types of BIAS in epidemiological studies and how to control them [22 marks]