



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

UNIVERSITY EXAMINATIONS 2013/2014

SCHOOL OF HEALTH SCIENCES

BUSIA LEARNING CENTRE

**BACHELOR OF COMMUNITY HEALTH AND DEVELOPMENT/BACHELOR OF
PUBLIC HEALTH**

SECOND YEAR SEMESTER TWO

COURSE CODE: HCD 3221

COURSE TITLE: PRINCIPLES OF EPIDEMIOLOGY

DATE: 04/12/2013

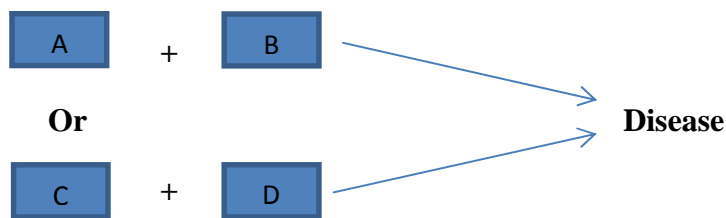
TIME: 9.00 AM – 11.00 AM (2 HOURS)

INSTRUCTIONS

1. Write your index number in all the examination booklets provided to you.
2. This paper comprises two sections Section A and Section B.
3. Answer all questions in sections A and ANY TWO questions in section B.

SECTION A: Short Answer Questions. (30 marks). Answer ALL questions in this section.

1. Classify observational studies giving one example in each category. (3 marks)
2. State two advantages of cohort studies. (3 marks)
3. State the two disadvantages of experimental studies (3 marks)
4. What do you understand by the term “bias” in research? (3 marks)
5. Outline three demographic determinants of disease causation. (3 marks)
6. Indicate from the diagram below whether the following cause of disease is *necessary and sufficient*, *necessary but not sufficient*, *sufficient but not necessary*, *neither necessary nor sufficient*. (3 marks). A, B, C and D refer to risk factors/causes of disease.



7. In an outbreak of meningitis in Sheywe District in 2007, meningitis was diagnosed in 16 of 96 pentavalent-vaccinated children compared with 48 of 96 unvaccinated children. Calculate the relative risk of getting meningitis. (3 marks)
8. In the year 2012 Mukabane Sub County had a mid-year population of 560,000. In that year there were 36000 live births and 4000 stillbirths. Forty mothers lost their lives in during child birth. Calculate the maternal mortality rate in Mukabane sub county (3 marks).
9. Using examples distinguish between active and passive immunity (3 marks)
10. State three attributes of a good screening test.(3 marks)

SECTION C: Essays (40 marks) Answer ANY TWO questions in this section

1. Discuss in details *nosocomial infections* under the following subheadings
 - a) Definition of nosocomial infections (2 marks)
 - b) Aetiology (8 marks)
 - c) Prevention and Control (10 marks)
2. A prostate cancer screening test (PSA levels) was performed on 465 elderly men attending a medical camp. One hundred men tested positive whereas the rest turned negative for prostate cancer. The entire 465 men were again tested for prostate cancer using fine needle aspirate histopathology (the confirmatory test) during which only fifteen tested positive for prostate cancer. The fifteen men who tested positive using

the confirmatory test included ten men who had initially tested positive under the screening test. Answer the following questions.

- a) List any three criteria necessary for a screening programme to be launched **(3 marks)**
 - b) Draw the two by two table and fill in the relevant information **(4 marks)**
 - c) Calculate the following:
 - i. Prevalence of prostate cancer amongst the sample of men tested **(3 marks)**
 - ii. Sensitivity of the screening test **(3 marks)**
 - iii. Specificity of the screening test **(3 marks)**
 - iv. Positive predictive value of the screening test **(3 marks)**
 - v. Negative predictive value of the screening test **(3 marks)**
3. A case controlled study was done in Mathioya district in which cancer of the cervix was diagnosed in 4 of 90 celibate nuns compared with 8 of 30 commercial sex workers.
- a) Draw a two by two table to represent the above information **(4 marks)**
 - b) Calculate odds ratio of acquiring cancer of the cervix in this study. **(3 marks)**
 - c) Interpret the odds ratio you have just calculated. **(2 marks)**
 - d) Calculate the attributable fraction **(3 marks)**
 - e) Calculate the population attributable fraction **(3 marks)**
 - f) Calculate the population relative risk **(3 marks)**
 - g) Calculate the population odds ratio **(3 marks)**
4. Discuss levels of disease prevention under the following subheadings
- a) Primordial prevention **(4 marks)**
 - b) Primary prevention **(6 marks)**
 - c) Secondary prevention **(6 marks)**
 - d) Tertiary prevention **(4 marks)**