JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

UNIVERSITY EXAMINATIONS 2012/2013

SECOND YEAR SECOND SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMMUNITY HEALTH AND DEVELOPMENT & BACHELOR OF SCIENCE IN PUBLIC HEALTH

(BUSIA LEARNING CENTRE)

COURSE CODE: HCD 3221

TITLE: PRINCIPLES OF EPIDEMIOLOGY

DATE: 15/04/2013   **TIME: 9.00 AM - 11.00AM**

DURATION: 2 HOURS

INSTRUCTIONS

1. This paper contains TWO sections.

2. Answer ALL questions in section A (Compulsory) and ANY other Two questions in section B.

3. Write all answers in the booklet provided.

Section A: **Answer ALL questions (30 marks)**

1. Describe the relationship between incidence and prevalence of disease**. (3 marks)**

2. Distinguish between observational and experimental studies. **(3 marks)**

3. Outline three differences between cohort studies and case-control studies **(3 marks).**

4. Outline three factors (criteria/guidelines) to be considered before causal inference can be made. **(3 marks)**

5. Differentiate between stratified random sampling and multistage sampling. **(3 marks)**

6. Explain the concept of bioterrorism**. (3 marks)**

7. List two emerging and re-emerging diseases and state two factors contributing to the evolution of emerging diseases. **(3 marks)**

8. Mashambani district had a population of 350,000. In 2002 there were 2500 live births and 300 still-births. Fifty neonates died within their first week of birth. Calculate the perinatal mortality rate for that year. **3 marks)**

9. Outline six vaccines offered in the Kenya government's expanded programme on immunization **(EPI). (3 marks)**

10. A case-control study was done to test whether heavy alcohol consumption is associated with oesophageal cancer. Out of 200 oesophageal cancer cases 92 had consumed > 80g /day of alcohol whereas the rest consumed less. Amongst the 775 controls 109 had consumed >80 g/day of alcohol whereas the others took less. Calculate the odds ratio for the study**. (3 marks)**

Section B: Answer ANY TWO questions (Total 40 marks)

1. Discuss in detail the determinants of health. **(20 marks)**
2. Nosocomial infections are a significant public health problem in Kenya.
    a. List three micro-organisms that cause nosocomial infections **(3 marks)**
    b. State four factors influencing the development of nosocomial infections **(4 marks)**
    c. State three roles of the hospital management team in the management of nosocomial infections **(3 marks)**

d. Distinguish between endogenous and exogenous infections **(2 marks)**

e. Describe in detail four methods and strategies used to prevent and control nosocomial infections **(8 marks)**

3. A cervical cancer screening test was performed on 660 women attending a reproductive health camp. Four hundred and forty women tested positive whereas the rest turned negative for the screening test. The entire 660 women were again tested for cervical cancer using histopathology (the confirmatory test) during which only 300 turned positive. The 300 who tested positive using the confirmatory test included 200 of the patients who had initially tested positive under screening test. Answer the following questions.

   a. List three other diseases that can be prevented through screening **(3 marks)**

   b. Draw the two by two table and fill in the relevant information **(2 marks)**

   c. Calculate the following:

      i. Prevalence of cervical cancer amongst the women **(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)**

4. In an outbreak of measles in Busakhala District in 2006, measles was diagnosed in 18 of 152 vaccinated children compared with 3 of 7 unvaccinated children.

   a. Draw a two by two table to represent the above information **(4 marks)**

   b. Calculate the relative risk of contracting measles. **(3 marks)**

   c. Interpret the relative risk you have just calculated. **(1 mark)**

   d. Calculate the attributable risk **(3 marks)**

   e. Calculate the attributable risk percent **(3 marks)**

   f. Calculate the population attributable risk **(3 marks)**

   g. Calculate the percentage population attributable risk **(3 marks)**