



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN ENVIRONMENTAL HEALTH

HEH 400: APPLIED EPIDEMIOLOGY

DATE: TUESDAY, 3RD APRIL 2012

TIME: 2.00 P.M. – 4.00 P.M.

Section A: Answer all questions

1. Differentiate between relative risk and attributable risk 4 marks
2. Briefly discuss sentinel surveillance and its application 4 marks
3. Explain the difference between random errors and systematic errors in epidemiological studies. 4 marks
4. Define ecologic study and explain one of the major shortcoming of this study design 4 marks
5. Explain the basic reproductive ratio (R_0) as used in infectious disease modeling. 4 marks

Section B: Answer question 1 and any other two questions

1. Kenyatta University recently held a graduation reception in which 220 members of staff attended. After the party, 180 of the 220 attendees reported having severe gastroenteritis. You want to find out which food(s) at the party might be responsible, so you interview all the staff who attended: Of 100 people who reported eating vegetable salad, 80 of them reported getting sick. Of 140 people who reported eating chicken stew, 110 reported getting sick. Of 100 people who reported eating pilau, 95 reported getting sick. Based on your findings answer the following questions:
 - a. Calculate the attack rate. 3 marks
 - b. Calculate the food specific attack rate 9 marks
 - c. Which food is most likely responsible for the gastroenteritis outbreak? Why 4 marks
 - d. Explain the term secondary attack rate as might occur from this outbreak. 4 marks

2. A cohort study was conducted in which 400 factory workers newly recruited into the company were followed up for one year. 220 of the workers were based in the company's manufacturing plants which produced paints while the other 180 were based in various offices. After one year, 190 of the workers in the manufacturing plants developed respiratory problems and 60 of those working in the offices developed respiratory problems.
- a. Draw a 2x2 table to represent this data 4 marks
 - b. Calculate the relative risk of developing respiratory problems in this cohort. 6 marks
 - c. Calculate and explain the attributable risk of exposure to paint manufacturing on respiratory problems. 5 marks
3. Regarding disease prevention, discuss giving examples five major preventable causes of diseases. 15 marks
4. Discuss experimental study designs under the following:
- a. Designing the experimental study 5 marks
 - b. Ethical issues in experimental studies 5 marks
 - c. The purpose and types of blinding in experimental studies 5 marks
