

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF APPLIED SCIENCES

DEPARTMENT OF ENVIRONMENTAL SCIENCE AND HEALTH

FINAL EXAMINATION

ENVIRONMENTAL EPIDEMIOLOGY: EPH 2003

July 2012

Time Allowed: 3 hours

Total Marks: 100

INSTRUCTIONS:

Answer any FOUR questions. Each question carries 25 marks.

Question 1

a) Explain the relationship between the three epidemiological measures of disease frequency. (10 marks)

b) In 1980 a mass screening of 10 000 sixty five year old men was done and 100 were found to have prostate cancer:

(i) Explain the measure of disease occurrences that can be calculated? (2 marks)

(ii) Calculate this measure. (3 marks)

c) The relative risk of lung cancer associated with passive smoking is low, but the population attributable risk is considerable. What is the explanation for this? (10 marks)

Question 2

Giving examples, discuss the major objectives of epidemiology and achievements that have been made in this field.

Question 3

You have been directed to conduct a study on the association between pesticide and lung cancer in women. Using the following study designs, explain how you would set up the studies:

a) Cross Sectional Survey (4 marks)

b) Case Control (8 marks)

c) Cohort (8 marks)

d) Illustrate the differences between internal validity and external validity in epidemiological studies. (5 marks)

Question 4

- a) You have been asked to write a justification for the institution of a screening programme for cancer of the cervix in your area of jurisdiction. Provide a write up of this justification. (20 marks)
- b) Differentiate between the sensitivity and specificity of a screening test. (5 marks)

Question 5

As a District Environmental Health Officer how would you monitor the occurrences of measles and detect an epidemic in your district.

Question 6

An outbreak of cholera has been reported in your area of operation. How would you carry out an epidemiological investigation of the outbreak and institute control measures?

End of paper

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SUPPLEMENTARY EXAMINATION

ENVIRONMENTAL EPIDEMIOLOGY: EPH 2003

March 2013

Time Allowed: 3 hours

Total Marks: 100

INSTRUCTIONS:

Answer any FOUR questions. Each question carries 25 marks.

Question 1

- a) Differentiate between the main types of errors in epidemiology. (13 marks)
- b) Explain how these errors can be reduced. (12 marks)

Question 2

What are the implications and disadvantages of the main epidemiological studies.

Question 3

- a) Give an example of a situation in which it would be more useful to examine the median of a distribution rather than the mean. (5 marks)
- b) During an outbreak of severe abdominal disease of an unknown cause the families of the patients suggest that the cause is adulterated cooking oil of a particular brand. Considering the criteria for causality give a justification of what you would demonstrate first. (10 marks)
- c) Design a suitable study to establish the cause. (7 marks)
- d) Suggest the suitable stage for intervention if the accumulating evidence showed that the oil might be the cause (3 marks)

Question 4

- a) Explain confounding in epidemiology and the influence that it may have on epidemiological studies. (10 marks)
- b) Discuss the control of confounding in epidemiological studies. (15 marks)

Question 5

Elaborate on the characteristics of a disease that would indicate its suitability for screening?

Question 6

- a) Describe the chain of infection for food borne disease caused by salmonella.
(10 marks)
- b) How would you carry out an epidemiological investigation of a food borne illness caused by salmonella.
(15 marks)

End of paper