UNIVERSITY COLLEGE LONDON
University of London
Examination for internal students

For the following qualifications
B.Sc (intercal)

Health Sciences C110

Paper title: The population perspective in primary care

This paper has three questions. You should attempt all of them. A total of 500 marks will be allocated, with 200 marks for question 1 and 150 marks each for questions 2 and 3. Question 1 requires short answers. Questions 2 and 3 require long answers. For each of questions 2 and 3, a total of 30 marks will be awarded for quality of presentation.

1. Data interpretation and screening [200 marks]:

The breast cancer screening programme in England and Wales, invites all women aged 50 and over for mammographic breast cancer screening every three years.

i. What benefits might there be from breast cancer screening? **[20 marks]**

ii. What adverse effects might there be from breast cancer screening? **[20 marks]**

The sensitivity and specificity of mammographic breast cancer screening are 96% and 94% respectively.

iii. What do you understand by the terms sensitivity and specificity? What are the advantages of highly sensitive and highly specific screening tests? **[10+10 marks]**

In the UK, the cross sectional prevalence of breast cancer in women over 50 years of age is 0.6%.

iv. What is the positive predictive value of a positive breast cancer screening test result? How would you interpret this value? **[15 marks]**

v. What would happen to the positive predictive value of a positive breast cancer screening test result if breast cancer screening were extended to women below 50 years of age, and why? **[15 marks]**

A meta-analysis of eight randomised controlled trials (RCTs) of breast cancer screening produced the following results:

Breast cancer deaths in unscreened and screened women in eight RCTs

Screened		Unscreened	
Number of women	**Number of breast cancer deaths**	**Number of women**	**Number of breast cancer deaths**
248,192	837	208,157	902

vi. What was the risk of death in screened and unscreened women?
[5+5 marks]

vii. What was the relative risk of death in unscreened compared to screened women?
[5 marks]

viii. What was the additional risk of death in unscreened compared to screened women?
[5 marks]

ix. According to the results of these trials, how many women need to be screened for breast cancer to prevent one breast cancer death?
[10 marks]

x. In the light of these results, and what you know about the potential adverse effects of screening, what would you say to a woman, aged over 50 years, who was considering attending for a mammography?
[30 marks]

The breast cancer screening programme screens 1.5 million women and costs £50 million per year.

xi. How much does it cost to screen each woman for breast cancer?
[5 marks]

xii. How much does it cost to prevent one death from breast cancer?
[5 marks]

xiii. Would it cost more or less to prevent one death from breast cancer if breast cancer screening were extended to women below 50 years of age, and why?
[20 marks]

xiv. When evaluating the overall costs and benefits of breast cancer screening, what costs and benefits need to be considered?
[20 marks]

2. Evaluation of health care [150 marks]:

How would you evaluate a chronic disease management programme in primary care? Illustrate your answer with reference to the management of one of the following conditions:

(a) Coronary heart disease.
(b) Diabetes.
(c) Asthma
(d) Schizophrenia.

3. Needs assessment [150 marks]:

Describe how you would determine the health needs of one the following groups:

a) Ethnic minorities.
b) The homeless.
c) Teenagers.