AFRICAN ECONOMIC RESEARCH CONSORTIUM

Collaborative PhD Programme in Economics for Sub-Saharan Africa

COMPREHENSIVE EXAMINATIONS IN CORE AND ELECTIVE FIELDS
FEBRUARY 13 – MARCH 4, 2019

HEALTH ECONOMICS

Time: 08:00 – 11:00 GMT   **Date: Wednesday, February 27, 2019**

INSTRUCTIONS:

Answer a total of FOUR questions: ONE question from Section A; ONE question from Section B; and TWO questions from Section C, o**ne of which must be either Question 5 or 6**.

The sections are weighted as indicated on the paper.

SECTION A: (15%)

Answer only ONE Question from this Section

Question 1

The World Health Organization in its 2010 World Health Report notes that "*while raising more money for health is crucial for lower-income countries striving to move closer to universal coverage, it is just as important to get the most out of the resources available.*"

(a) By means of relevant examples, explain any five causes of low Value-for-Money in your country's health system.   **(5 Marks)**

(b) Briefly, explain any five policy strategies which you would suggest to your Minister of Health to improve Value-for-Money in delivering health services in your country.
                    (10 Marks)

Question 2

(a) Health has been classified as a fundamental human right; hence the global call for increased public health financing. Given the economic situation of different countries, governments have the option of giving grants to individual inhabitants to pursue their health needs or subsidize the cost of accessing healthcare. However, governments prefer subsidies to grants even though subsidies are costlier.

  (i) Using a clearly labeled indifference curve diagram, show that a subsidy is more costly than a grant.   **(3 Marks)**

  (ii) Explain why governments would prefer a subsidy to a grant.   **(5 Marks)**

(b)

    (i)   Explain key factors that influence disease prevalence in communities.   **(4 Marks)**

    (ii) Assume you have 88 smokers and 29 non-smokers. Of the 88 smokers, 33 have cancer. Further, 2 of the non-smokers have cancer while 27 do not. Calculate the exposure rate and the odds ratio.   **(3 Marks)**

SECTION B: (25%)

Answer only ONE Question from this Section

Question 3

(a) "Consumer and producer theories can be applied to the analysis of healthcare markets without any adjustment". Using any five well chosen examples, critically examine the validity of this statement.   **(15 Marks)**

(b) Using examples from your country, discuss five ways through which the government routinely intervenes in the healthcare market.   **(10 Marks)**

Question 4

(a) Mead Over's (1991) *Economics for health sector analysis*, page 185, revealed that the annual average Healthy Life Days lost per capita from typhoid in Ghana was 4.75 days. Suppose in the year in question, there were 275,000 reported cases of typhoid, the Ghanaian population was 29,463,643 while the GDP (at PPP) was $130 billion.

    (i)   Using human capital approach, calculate the monetary value of the burden of typhoid on the Ghanaian economy.   **(4 Marks)**

    (ii) With reference to ethical and/or welfarist arguments, explain the policy applicability of your finding.   **(7 Marks)**

(b) Why is the National Health Accounts system a performance watch?   **(8 Marks)**

(c) What are the limitations of National Health Accounts?   **(6 Marks)**

(d) Social factors and health status are closely related. Explain some of these factors, and the institutions working to change them to improve health.   **(10 Marks)**

SECTION C: (60%)

Answer TWO Questions from this Section,

AT LEAST one of which MUST be Either Question 5 or Question 6

Question 5

(a) "A neurological loop lies at the core of every habit." Provide an example of the Habit Loop. **(5 Marks)**

(b) Wood and Runger (2016) note that "*by building on an understanding of habit mechanisms, addiction treatments as well as other interventions to change lifestyle behaviors may successfully disrupt unwanted habits and help people to form more effective habits that meet their goals for healthy and productive lives.*"

Using the Habit Loop, propose a set of five strategies to overcome bad health habits in your community. **(15 Marks)**

(c) Using real-life examples, distinguish between the Myopic Model and the Rational Model of addictive behavior. **(10 Marks)**

Question 6

(a) Using the same method as employed by Tomas Philipson (2000) **"**Economics of Epidemiology and Infectious Diseases" in Anthony J. Culyer and Joseph P. Newhouse (Eds.) *Handbook of Health Economics,* predict the changes in the health of the population as determined by the relationship between infected individuals and those susceptible to secondary infections. **(10 Marks)**

(b) Prevalence elasticity and demand for vaccines are responsible for the failure or success in the eradication of some infectious diseases.

    (i) What is prevalence elasticity and how does it affect the outcomes of disease eradication efforts by the private sector? **(10 Marks)**

    (ii) Consider a utility function u(h, d) over a binary demand for protection (d =1), where the state variable (h) represents the susceptible (s) or infected (i) health states. The value function evaluated in the susceptible state is written as:

$$V(s) = \max\{u(s,1) + \alpha V(s,0) + \alpha[\beta I_t\, V(i) + (1 - \beta I_t)\, V(s)]\}.$$

Where α is the discount rate, while β is the transmission parameter.

Discuss the rational protection behavior of an individual using the above model. **(5 Marks)**

(c) What is the Pigouvian subsidy and why has it been less effective in correcting vaccine under-provision? **(5 Marks)**

Question 7

Data Envelopment Analysis (DEA) is an important model in the measurement of health facility efficiency.

    (a)   Outline the 'input-oriented' and 'output-oriented' type of the model.   **(8 Marks)**

    (b)   Interpret both models.   **(6 Marks)**

    (c)   Attempt the transformation of both models into their linear program forms. **(9 Marks)**

    (d)   What are the strengths and limitations of DEA?   **(7 Marks)**

Question 8

    (a)   Frick and Chernew (2009) have examined the welfare consequences of moral hazard and suggested that, in many cases, the additional consumption associated with health insurance could be welfare-enhancing. This arises because conditions for Pareto efficiency fail to hold in the market for medical care, thereby making the theory of the second best useful. Illustrate how insurance-induced consumption improves welfare.
    (10 Marks)

    (b)   Using real-life examples you are familiar with, explain the following Doctor-Patient relationships: -

      (i) Default   **(3 Marks)**

      (ii) Consumerist   **(3 Marks)**

      (iii) Paternalistic   **(3 Marks)**

      (iv) Mutuality   **(3 Marks)**

    (c)   Using an illustration, explain the Supplier-Induced healthcare Demand Hypothesis.
    (8 Marks)