AFRICAN ECONOMIC RESEARCH CONSORTIUM

Collaborative PhD Programme in Economics for Sub-Saharan Africa

COMPREHENSIVE EXAMINATIONS IN CORE AND ELECTIVE FIELDS

FEBRUARY 13 – MARCH 3, 2017

PUBLIC SECTOR ECONOMICS

Time: 08:00 – 11:00 GMT **Date: Tuesday, February 28, 2017**

INSTRUCTIONS:

Answer a total of FOUR questions: ONE question from Section A, ONE question from Section B, and TWO questions from Section C.

The sections are weighted as indicated on the paper.

SECTION A: (15%)

Answer only ONE Question from this Section

Question 1

Explain any five causes of market failure that may necessitate public sector intervention. [**15 marks**]

Question 2

Explain any five guiding principles for revenue assignment in Africa. **[15 marks]**

Section B: (25%)

Answer only ONE Question from this Section

Question 3

Two firms are ordered by the county government to reduce their pollution levels. Firm *A*'s marginal cost associated with pollution reduction is MC = 20 + 4Q. Firm B's marginal cost associated with pollution reduction is MC = 10 + 8Q. The marginal benefit of pollution reduction is MB = 400 – 4Q.

(a) What is the socially optimal level of each firm's pollution reduction? [**10 marks**]

(b) Analyze the social efficiency of each of the following conditions:

(i) A requirement that both firms reduce pollution by the same amount. [**5 marks**]

(ii) Charging a common tax per unit of pollution. [**5 marks**]

(iii) A requirement that both firms reduce pollution by the same amount but allow pollution permits to be bought and sold. [**5 marks**]

Question 4

(a) Using examples from your country, discuss the implications of the increasing external public debt. **[10 marks]**

(b) Discuss ways in which African governments have reacted to tax competition on the international scene**.** **[15 marks]**

Section C: (60%)

Answer TWO Questions from this Section

Question 5

(a) In two-car automobile accidents, passengers in the larger vehicle are significantly more likely to survive than are passengers in the smaller vehicle. In fact, death probabilities are decreasing in the size of the vehicle you are driving, and death probabilities are increasing in the size of the vehicle you collide with. Some politicians and lobbyists have argued that this provides a rationale for encouraging the sale of larger vehicles and discouraging legislation that would induce automobile manufacturers to make smaller cars. Critically examine this argument using the concept of externalities. [**7 marks**]

(b) Consider an economy with a public good G and a private good z. There are just two persons. Each individual has an income, or endowment of the private good, equal to m. The marginal cost of producing public goods is given by c. Each person has Cobb-Douglas utility function over the public good and the private good that are given by:

$$U_1 = \alpha ln(G) + (1-\alpha)\ln(z_1)$$

and

$$U_2 = \alpha ln(G) + (1-\alpha)\ln(z_2)$$

where a represents the utility weight on, or preference for, public goods.

Characterize the level of the public good under both the public and private provision and comment on your results. [**23 marks**]

Question 6

(a) Critically analyze the prescriptions of the Tiebout model and show how it solves the problems with preference revelation that are present with Lindahl pricing. [**15 marks**]

(b) Explain why governments sometimes impose quantity regulations as opposed to taxation to limit the level of negative consumption externality. [**15 marks**]

Question 7

(a) Discuss any six enablers of Illicit Financial Flows from African countries and their policy implications. **[18 marks]**

(b) Discuss any six guidelines for coherent international tax and investment policies. **[12 marks]**

Question 8

Using Harberger's (1962) two-sector general equilibrium model, show (without necessarily stating all the assumptions of the model) algebraically and graphically, the substitution and output effects of the introduction of corporate tax on capital in the corporate sector. [**30 marks]**