



STRATHMORE INSTITUTE MATHEMATICAL SCIENCES (SIMS)
BBS FINANCIAL ECONOMICS
END OF SEMESTER EXAMINATION
BSE 4120 DEVELOPMENT ECONOMICS

Date: 14TH SEPTEMBER 2021

Time: 2 Hours

Instructions

1. This examination consists of **FIVE** questions.
2. Answer **Question ONE (COMPULSORY)** and any other **TWO** questions.

QUESTION ONE (30 Marks)

- i) Assume you work as a Development Economist expert in UNDP you are requested to discuss the structure of the world past, present and future population growth. Briefly outline some of the key structures you will discuss. **(4 marks)**
- ii) The population for African countries has been growing at an estimated growth rate of 2.3 percent every year. If the population for Kenya was to double, how many years will it take to double? **(2 marks)**
- iii) Now, given the Kenyan population grows with a double time of 20 years, and the current population is 38 million in year 2018, what will the population be, in year 2050? And year 2100? **(4 marks)**
- iv) Select the correct position for the statement below: **(2 marks)**

“In order to have potential positive effects on incomes, investments in human capital: have to be undertaken with _____?”

- a) effectiveness and equity
 - b) effectiveness and efficiency
 - c) efficiency and equity
 - d) equity, efficiency, and effectiveness.
- v) Somalia has a population of 20 individuals, their personal income is measured in money units as follows: 0.7, 7.8, 2.3, 3.8, 0.8, 7.1, 1.6, 5.2, 9.5, 9.7, 13.9, 2.3, 6.7, 2.5, 1.4, 6.4, 7.8, 3.6, 4.3, 2.6.
- a) Compute the share of total income in quintiles and deciles **(4 marks)**
 - b) Calculate the income inequality using Kuznets ratio **(2 marks)**
 - c) Describe how the Kuznet ratio measure income inequality **(1 mark)**
 - d) Using the above data plot the Lorenz Curve **(2 marks)**
 - e) Assume you are given a fictitious data which is described as follows. Income allocation for 9 individuals is 17.8, for 6 individuals is 33.5 and for 5 individuals is 48.7. Calculate the mean income (μ) for all the individuals? **(2 marks)**
 - f) Calculate the Gini-coefficient for question (e) above? **(3 marks)**

$$\text{(hint: } G = \frac{1}{2\mu n^2} \sum_{j=k}^m \sum_{k=1}^m n_j n_k |y_j - y_k|)$$

- g) Describe what the Gini-coefficient calculated imply? **(2 marks)**
h) List at least six programmes the Kenyan government has put in place to reduce poverty **(3 marks)**

QUESTION TWO (20 Marks)

Education and Health are joint investments for development, Discuss the reasons and suggest relevant examples why greater health may improve the return in education and how greater education investments may raise the return in health. **(20 Marks).**

QUESTION THREE (20 Marks)

- i) You are given a population that is divided into quintiles as specified in the equation below.

$$G = w_1g_1 + w_2g_2 + w_3g_3 + w_4g_4 + w_5g_5$$

Note that:

G = a weighted index of growth of social welfare,

gi = the growth rate of income of the *i*th quintile (where the *i* quintiles are ordered 1, 2, 3, 4, and 5), and

wi = the “welfare weight” of the *i*th quintile and they assume the following values: $w_1 = 0.12$, $w_2 = 0.51$, $w_3 = 0.68$, $w_4 = 0.14$, and $w_5 = 0.15$).

- a) Write the equation for the GNI-share weighted index of social welfare (denoted as G). (1 Mark)
- b) Take for instance, that the income growth rate of the bottom 60% of the population is 20% while that of the top 40% is 80%. Write the new equation for G and *Solve the value for G*. (2 Marks)
- c) *What happens when income increases? Is GNI the finest approach for measuring welfare effects? Explain.* (2 Marks)
- ii) Discuss implications of the O-ring theory and provide two reasons that explain what the O-ring theory postulates (15 Marks).

QUESTION FOUR (20 Marks)

Development is much broader than economic growth. In fact, Economists define development as “growth plus change”. Discuss **(20 Marks).**

QUESTION FIVE (20 Marks)

Briefly describe the two principal cause of high population growth in developing countries. Further explain why fertility rates are falling much more rapidly in some developing countries than in others. **(20 Marks)**