Birla Institute of Technology & Science, Pilani, Pilani Campus – Rajasthan
Mid-Sem (Closed Book) ECON F 313 [Issues in Economic Development]

Maximum Marks: 70   **Time Duration**: 90 Minutes
                                                         Dated: 9/Oct/2023

Instructions:
- Read the questions thoroughly before answering. All questions are compulsory. Start each question on a new page.
- Calculation(s) to arrive at the result(s) and its Interpretation are necessary to get marks.
- Calculator is allowed.
- Make sure that you have correctly mentioned your Name, ID, Course, and other details on your answer sheet.

Question 1: Poverty is defined as a condition in which an individual or household lacks the financial resources to afford a basic minimum standard of living. In this context, answer the following questions.   **[15 Marks]**

(a) What is a vicious circle of poverty?

(b) Calculate the human poverty index (HPI) from the given information.

$P_1 = 10\%$; $P_2 = 85\%$; $P_3 = 15\%$; $P_4 = 8\%$

Where P_1 is the probability of not surviving to age 40; P_2 is the adult literacy rate; P_3 is the percentage of people without access to an improved water source and P_4 is the percentage of children underweight for age.

Note: P_3 and P_4 have a combined weight of 1/3, and all the other indicators own their usual weight. Let the value of $\alpha = 3$

(c) Also highlight two shortcomings of HPI in measuring the deprivation.

(d) Point out the different dimensions of measuring the multidimensional poverty index (MPI).

(e) How do you interpret the results of MPI values? And how is the Amartya Sen Index different from MPI in measuring the poverty?

Question 2: Let a society with 5 individuals within income distribution as follows. Tom has an income of 1 dollar per day. Mary makes 2 dollars, Paul makes 3 dollars per day, Louise makes 4 dollars per day. Marth makes 10 dollars per day.   **[7 Marks]**

(a) Draw a Lorenz curve for this economy. Carefully label your graphs and your axis.

(b) Suppose that now Martha makes a gift of 2 dollars to Tom, do you think the Gini coefficient will change. If yes/no then justify it.

(c) Let the poverty line is 2.5 dollar per day, then calculate the headcount ratio.

Question 3: Explain how absolute poverty is different from relative poverty. Assume a society that consists of four individuals with the following incomes: 200, 220, 300, and 320 and the poverty line is 250. calculate the poverty gap index.   **[10 Marks]**

Question 4: Consider a version of Kremer's O-Ring model. Output is produced from 3 separate tasks according to the production **[20 Marks]**

$$Y = q_1 q_2 q_3$$

Suppose there are 3 workers in this economy, and each worker starts with a low skill level $q_L = 1$. Workers can choose to go to university and pay a cost 'c' to increase their level of skill to $q_H = 4$. Assume that the total output is distributed equally among the workers.

a) Suppose that $c = 1$, is it an equilibrium that none of the workers goes to the university? Justify your answer.

b) Suppose that $c = 1$, is it an equilibrium that all of the workers go to the university? Justify your answer.

c) For what values of c , we have that both *all workers go to university* and *all workers don't go to university* is an equilibrium? Justify your answer.

d) Suppose we are in a situation like c) where both are equilibria. What are the implications for economic development of this model? Why are poor countries stuck in poverty traps?

e) Use this model to explain the phenomenon of 'brain drain' from developing and underdeveloped countries to developed countries.

Question 5: The Lewis model has emerged as one of the most important theories in development economics, and its originator was honoured with the Nobel Prize. answer the following questions. **[10 Marks]**

(a) Is the Lewis theory of economic development still applicable to developing nations? If yes/no, then justify it.

(b) Let the economy of India have two sectors and 20 workers. The price of output in both sectors is equal to 1. The production in the agricultural and manufacturing sectors is given as follows in the case of the Lewis model.

$$Q_{ag} = 16L_{ag} - 0.4L_{ag}^2 \text{ and } Q_{mg} = 10L_{mg} - 0.1L_{mg}^2,$$ Where Q_{ag} and Q_{mg} are the output from the agriculture and manufacturing sectors, and L is the labor.

   (i) Determine the GDP of India
   (ii) Calculate the best combination of labor in both sectors so that the output is maximized.

Question 6: Graphically explain the multiple equilibria theory of economic development. Explain how coordination failure can lead to a poverty trap and act as an impediment to economic development. **[8 marks]**

*****All the Best*****