Name_____ **ID**_____

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
FIRST SEMESTER 2023-2024
Comprehensive Examination
Part-A (Closed Book)

Course No.	**: ECON F313**	Maximum Marks	**: 40**
Course Title	**: Issues in Economic Development**	Duration (Max)	**: 180 Minutes**
Date	**: 7/Dec/2023**	Weightage	**: 35%**

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.

Q1. Answer the following questions. **[5+5=10 Marks]**

a) Let the production function of the Romer model for the final good sector be as follows.

$$Y = L^{1-\alpha} \sum_{i=1}^{A} x_i^{\alpha}$$

Where, Y is total output, L is labour, α is their elasticity, x_i is the bunch of intermediate goods. Now assume that the cost of labour is represented as W, the cost of capital is noted as R, and the cost of the x_i is P_i (price). Using the above information, find the optimum price level of the final good sector where the monopolist earns a higher profit.

b) In the simplified Romer model, we assumed that the production function for new ideas was given by:
$\dot{A} = \theta L_A^{\lambda} A^{\emptyset}$

Where $\dot{A} = d(A)/dt$, A shows the idea, t is time, L is labor, and λ and Ø are their elasticity.

By using the above information, answer the following questions

i. Assume that Ø is greater than zero. What does this imply for the relationship between the current idea level and the difficulty of discovering new ideas? What is the name of this effect?

ii. Assume that Ø is less than zero. What does this imply for the relationship between the current idea level and the difficulty of discovering new ideas? What is the name of this effect?

Q2. Answer the following question. [**5 Marks**]

(a) What does the Coase theorem say?

(b) How does the Coase theorem solve externalities?

(c) What are the conditions of the Coase theorem?

(d) Explain one of the applications of the Coase theorem.

(e) When would the Coase theorem not work?

Q3. Answer the following questions. [**8 Marks**]

a) Explain the role of public debt in achieving economic price stabilization. Also, point out two different components of direct and indirect tax, respectively.

b) Calculate Revenue Deficit, Fiscal Deficit, and Primary Deficit from the following data:

Particulars	**Rs in Crore**
Revenue expenditure	22,250
Capital expenditure	28,000
Revenue receipts	17,750
Capital receipts (net of borrowing)	20,000
Interest payments	5,000
Borrowings	12,500

Q4. Answer the following questions. [**3+3 = 6 Marks**]

a) Define the maternal mortality rate and adolescent fertility rate in the context of the gender inequality index, and how do you interpret if the gender inequality index is 1?

b) Let the country where 60% of the people are poor and has a multidimensional poverty index (MPI) value of 0.7. MPI is calculated using 10 indicators spread across three dimensions. Using this information, find the value of MPI and interpret the intensity of poverty in this country.

Q5. What is the difference between agricultural output and agricultural productivity? Explain the role of agriculture in economic development and how fiscal stimulus influences agricultural output. **[6 Marks]**

Q6. Highlight the characteristics of a developing country according to Nelson's low-level equilibrium theory of development and graphically describe Nelson's theory of the low-level equilibrium trap. [**5 marks**]

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

Name_____ **ID**_____

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
FIRST SEMESTER 2023-2024
Comprehensive Examination
Part-B (Open Book)

Course No.	**: ECON F313**	Maximum Marks	**: 30**
Course Title	**: Issues in Economic Development**	Duration (Max)	**: 180 Minutes**
Date	**: 7/Dec/2023**	Weightage	**: 35%**

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.

Q7. Consider two hypothetical countries – A and B. In each country, there are 100 children of age 6 -10 years. In both countries, 50% live in urban areas and 50% in rural areas. In country A, 40 children in urban and 20 in rural areas are enrolled in school. In country B, 35 children in urban areas and 25 in rural areas are enrolled in school. Based on the above information, answer the following questions. [**1+1+3=5 Marks**]

(a) Write the opportunity and circumstance variables for both countries.
(b) What is the number of circumstance groups in each country?
(c) Which country is better for providing equal access to the given opportunity? Show your calculations.

Q8. In period 1, a country has a population of 400 children aged 6-10 years. Assume there is no growth in the population of children aged 6-10 years from period 1 to period 2. These children can be characterized by two circumstance variables, namely, gender and place of residence. The policymakers in this country want to understand the reasons for the change in the human opportunity index (HOI) for school enrolment from period 1 (initial period) to period 2. For this, they need to decompose the change in HOI into it's various components. In this context, use the information in Tables 1, 2, 3, and 4 to answer the following questions. **[4+1+4+1=10 Marks]**

a) Calculate human opportunity index (HOI) in period 1 (initial period) and period 2.
b) Calculate the total change in HOI from period 1 to period 2.
c) Calculate the composition effect from period 1 to period 2.
d) Calculate the coverage effect from period 1 to period 2.

Please show the necessary steps to get full credit.

Table 1: Distribution of population in period 1

	Urban	Rural
Male	25%	25%
Female	25%	25%

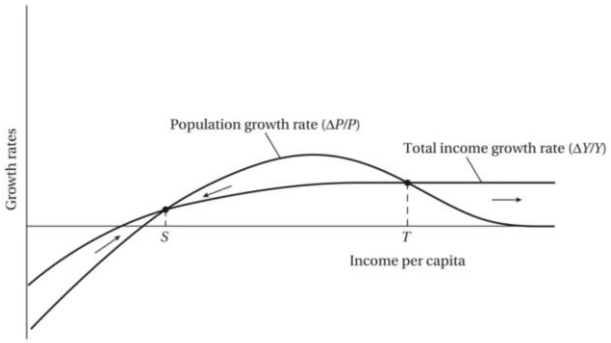
Table 2: Distribution of population in period 2

	Urban	Rural
Male	40%	20%
Female	30%	10%

Table 3: Group-specific coverage rates in Period 1		
	Urban	Rural
Male	75%	45%
Female	15%	5%

Table 4: Group-specific coverage rates in Period 2		
	Urban	Rural
Male	65%	15%
Female	40%	40%

Q9. Malthus famously argued that population growth would depress living standards in the long run (population trap). In this context, refer to the figure below and answer the following questions. [**2+2+3 = 7 Marks**]



(a) Explain how higher per capita income can contribute to the population growth rate.
(b) Is it possible to sustain a per capita income level above S and below T? Explain.
(c) Make changes in the above figure to show how technological progress allows countries at sustenance level (S) to avoid the population trap.

Q10. It is worth emphasizing two characteristics of the multidimensional poverty index (MPI) indicators that differentiate them from those typically used in other reports and statistics. The first characteristic is that the person is identified as poor depending upon the achievements of the entire Household. The second is that MPI considers only the deprivations of the multidimensionally poor. This process is called censoring since it ignores deprivations of people who do not reach the poverty cut-off—people who experience some deprivation but are not deprived in 1/3 of the weighted indicators.

Consider a hypothetical economy where people are living in 5 households. Table 5 contains the information on these households. [**1+2+2+1+2=8 Marks**]

Table 5		
Name of Household	**Household size**	**Deprivation score**
1	4	0.222
2	7	0.722
3	5	0.389
4	4	0.5
5	3	0.2

Based on the information given, answer the following questions.

(a) Which households are considered multidimensionally poor?
(b) Calculate the headcount ratio in this economy.
(c) Calculate the intensity of poverty in this economy.
(d) Calculate the multidimensional poverty index (MPI) in this economy?
(e) Now, suppose this economy reports a HDI score of 0.4. How is this HDI score different from the MPI score? Highlight two differences.

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