**SIKSHA ‘O’ ANUSANDHAN**

**INSTITUTE OF TECHNICAL EDUCATION AND RESEARCH**

**Principle of Macroeconomics (HSS2021)**

**ASSIGNMENT – 1**



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BRANCH: - CSE

SECTION: - ‘D’

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PROGRAMME: - B. TECH

1. **List and describe four determinants of productivity.**

Determinants of productivity:

* **K/L (Physical capital per worker): -** Tools that allow workers to produce output more efficiently.
* **H/L (Human capital per worker): -** Knowledge and skill sets that are possessed by workers/labor.
* **N/L (Natural resources per worker): -** Production inputs provided by nature, i.e. land, water, mineral resources, can be renewable and nonrenewable.
* **A (Technological knowledge): -** The understanding of methods to efficiently produce goods and services.

1. **What is national saving? What is private saving? What is public saving? How are these three variables related?**

* **National Saving: - Total** income in the economythat remains after paying for consumption and government purchases.
* **Private Saving: -** The income that is left with the households after paying for taxes and consumption.
* **Public Saving: -** The tax revenue that the government has left after paying for its expenditures.
* **Relation :-** National Saving= Private Saving + Public Saving

1. **Suppose GDP is $8 trillion, taxes are $1.5 trillion, private saving is $0.5 trillion, and public saving is $0.2 trillion. Assuming this economy is closed; calculate consumption, government purchases, national saving, and investment.**

GDP = Y= $8 trillion

Tax = T= $1.5 trillion

Private Saving = S (private) = $0.5 trillion

Public Saving = S (public) = $0.2 trillion

**Consumption calculation:-**

C= Y – T – S (private) = $(8 - 1.5 - 0.5) = $6

The consumption is $6 trillion.

**Government Purchase Calculation:-**

Public Savings = taxes – government purchase

Government purchase = taxes – public savings

= T – S (public)

= $(1.5 - 0.2)

= $1.3

The government purchases are $1.3 trillion.

**National Saving Calculation:-**

National saving = S (private) + S (public) = $(0.5 + 0.2) = $0.7

The national saving is $0.7 trillion.

**Investment: -**

In a closed economy, investment is equal to a national saving. So, investment is $0.7 trillion, just as national saving.

1. **Mr. Rohit has taken loan worth Rs. 10, 00,000 from SBI to build a house with interest rate 12% compounded annually. This should be repaid in 20 yearly equal installments. Find the installment amount.**

**P** = 10, 00,000

**I** = 12%= 12/100 = 0.12

**N** = 20 years

So, we have a relation that

Installment amount = **A**

= 10, 00,000 x (1 + 0.12) ^ 20 x 0.12 / (1 + 0.12) ^ 20 – 1

= Rs. 133878.78

So, Mr. Rohit has to pay **Rs. 133878.78** every year for 20 years.

1. **A person deposits a sum of Rs.10,000 at the interest rate of 10% compounded annually for 10 years . Find the maturity value after 10 years.**

**P** = 10,000

**I** = 10%= 10/100= 0.1

**N** = 10 years

So, we got the relation:-

Maturity value = **F** = (1 + 0.1) ^ 10 x 10,000 = Rs. 25937.42

So, after maturity of 10 years the person will get **Rs. 25937.42 .**