SIKSHA 'O' ANUSANDHAN

INSTITUTE OF TECHNICAL EDUCATION AND RESEARCH

Principle of Macroeconomics (HSS2021)

ASSIGNMENT – 1

SUBMITTED BY:-

NAME: - Saswat Mohanty

REGD NO.: - 1941012407

BRANCH: - CSE

SECTION: - 'D'

SEMESTER: - 4th

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.

2) What is national saving? What is private saving? What is public saving? How are these three variables related?

- **National Saving: - Total** income in the economy that 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

3) 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.

4) 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.

5) 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 .**