III MODULE

# 11. IS-LM MODEL

Q:1 Explain the term 'Goods Market' and Explain how IS Curve is Derived? OR Explain the derivation of IS Curve and explain the Slopes and shifts ?

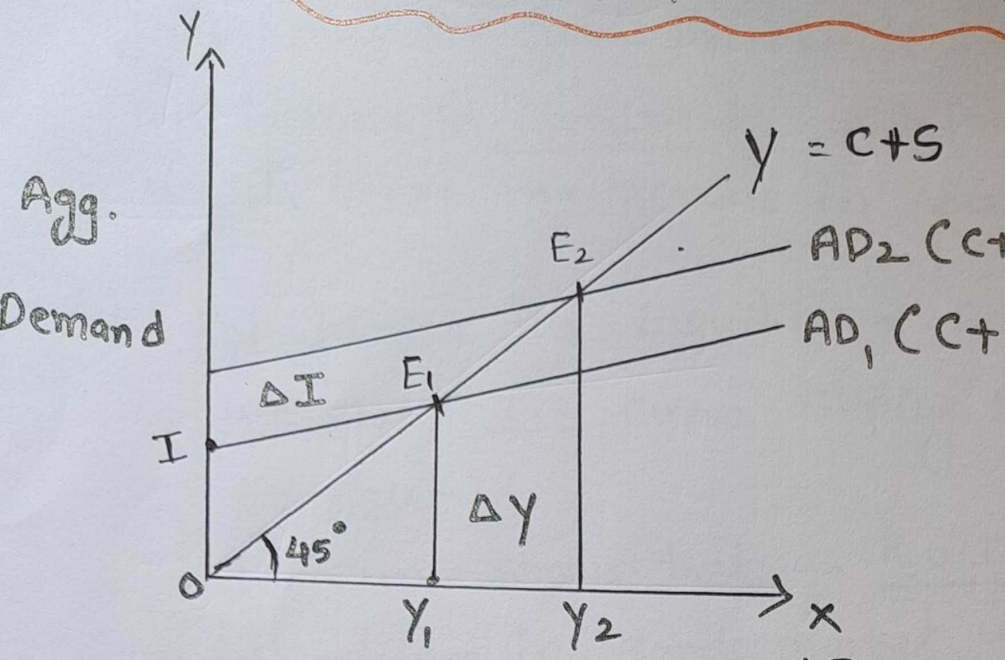
(A) INTRODUCTION :- The IS-LM Model has been developed by Hicks, Hansen, Lerner and Johnson. The IS-LM Model shows, how the level of National income and rate of interest is Jointly determined by Simultaneous equilibrium in Two independent goods and money markets.

(B) GOODS Market EQuilibrium :- The goods market is in equilibrium when - Agg. Demand = Agg. INCOME. The Aggregate demand is determined by - Consumption Demand and Investment Demand. when R.O.I Falls, The level of investment increases and Vice Versa. The increase in Investment will increase Agg. Demand which result in increase in Agg. Income.

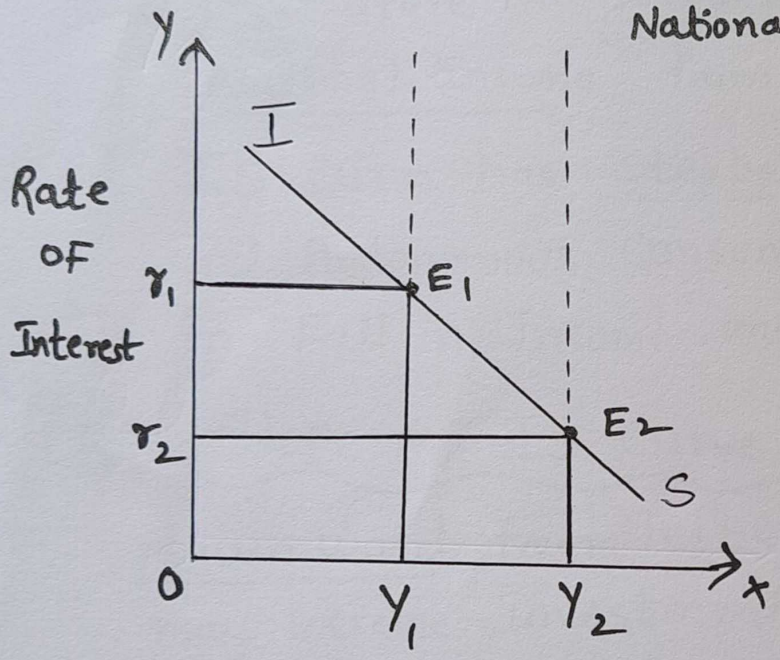
(C) Derivation OF IS Curve :-

" IS Curve is the locus of Pair of interest rates and Level of income which are Compatible with goods market equilibrium "

# Derivation OF IS Curve in Goods Market




← Fig-A




← Fig-B

In above Figure we Observe—

1) $AD_1$ is aggregate Demand Curve shows, Planned Investment in economy with $OI$ level of investment.

2) $AD_1$ $(C+I)$ Curve interseet OY Curve at Point $E_1$. It shows $Or_1$ = Rate OF Interest at $OY_1$ level of National Income in Fig-B.

3) Now when Rate of Interest Falls to $Or_2$ in Fig-B, It increase the investments to $C+I_1$ in

Fig-A. Now the goods market is in Equilibrium at $E_2$. This increase in investment, will increase Agg. Demand which result in increase in National Income $OY_2$.

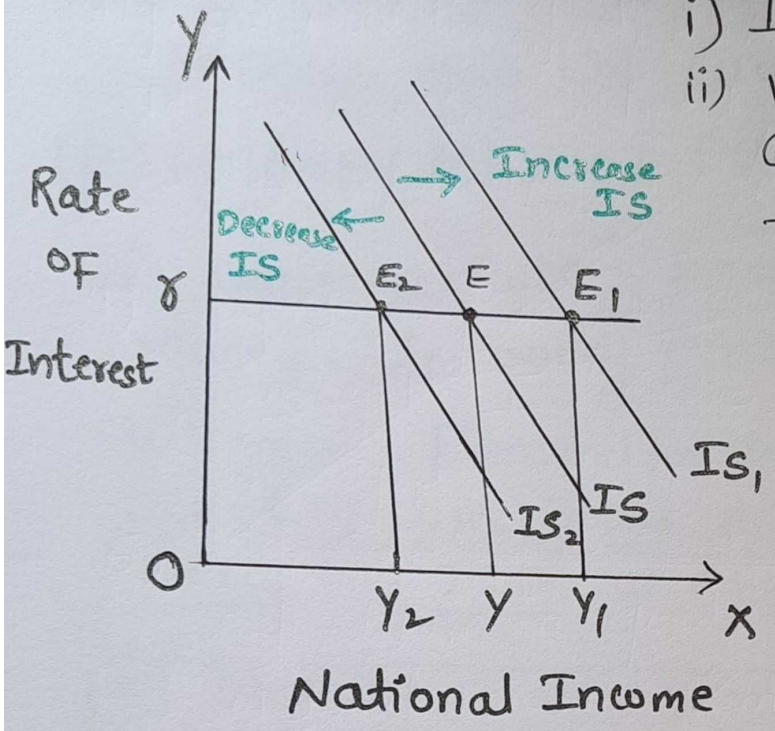
4) By Joining the Equilibrium Points $E_1$ and $E_2$ in Fig-B we get IS curve sloping Downward from left to right.

5) IS Curve shows that as R.O.I Falls, more investment expenditure in goods market will help to increase National Income from $Y_1$ to $Y_2$.

6) IS Curve has steeper slope, when investment Exp. and Autonomous Consumption reduced; which result in Fall in income and R.O.I may be increase

(D) **Slope of IS Curve :-** IS Curve is sloping downward from left to right. A Fall in R.O.I may increase Investment Expenditure which result in increase in Agg. Demand and Agg. Income.

(E) **Shifts in IS Curve :-** The Position of IS Curve is determined by Level of autonomous expenditure. Some time there is Change in Autonomous expenditure or Government Expenditure, which shift IS curve either on Right Side or Left Side shown in Following diagram as Follows :—




i) IS is original IS-curve.

ii) With increase in Autonomous Govt. Exp. IS Curve is shifted to Right Side - $IS_1$. Here National Income increase to $OY_1$ at New Equilibrium - $E_1$.

iii) When Autonomous Exp. reduce. Here IS Curve is shifted to Left Side - $IS_2$ Here National Income reduce to $OY_2$ at equilibrium $E_2$.

## (F) Factors Responsible For Change in Autonomous Exp.

1. **Change in Govt. Spending** :- Increase in Govt. Exp will shift IS curve on Right side & Decrease in Govt. Exp. will shift IS curve on Left Side.

2. **Change in Autonomous Investment** :- More Autonomous investment in Infrastructure will shift IS Curve on Right side & Vice Versa.

3. **Change in Taxes** :- An increase in Tax Revenues will shift IS Curve on Right side and Vice Versa.
(e.g GST Taxes.

Q:2 Explain the Term Assets Market / Money Market. Explain how LM Curve is derived?

(A) **MONEY MARKET EQUILIBRIUM :-** Money Market is concerned with - Demand for money and Supply of money. In money market, Equilibrium is determined where — **Demand for Money = Supply of Money.** The LM Curve shows different combinations of Interest rates and Income at which money market is in Equilibrium.

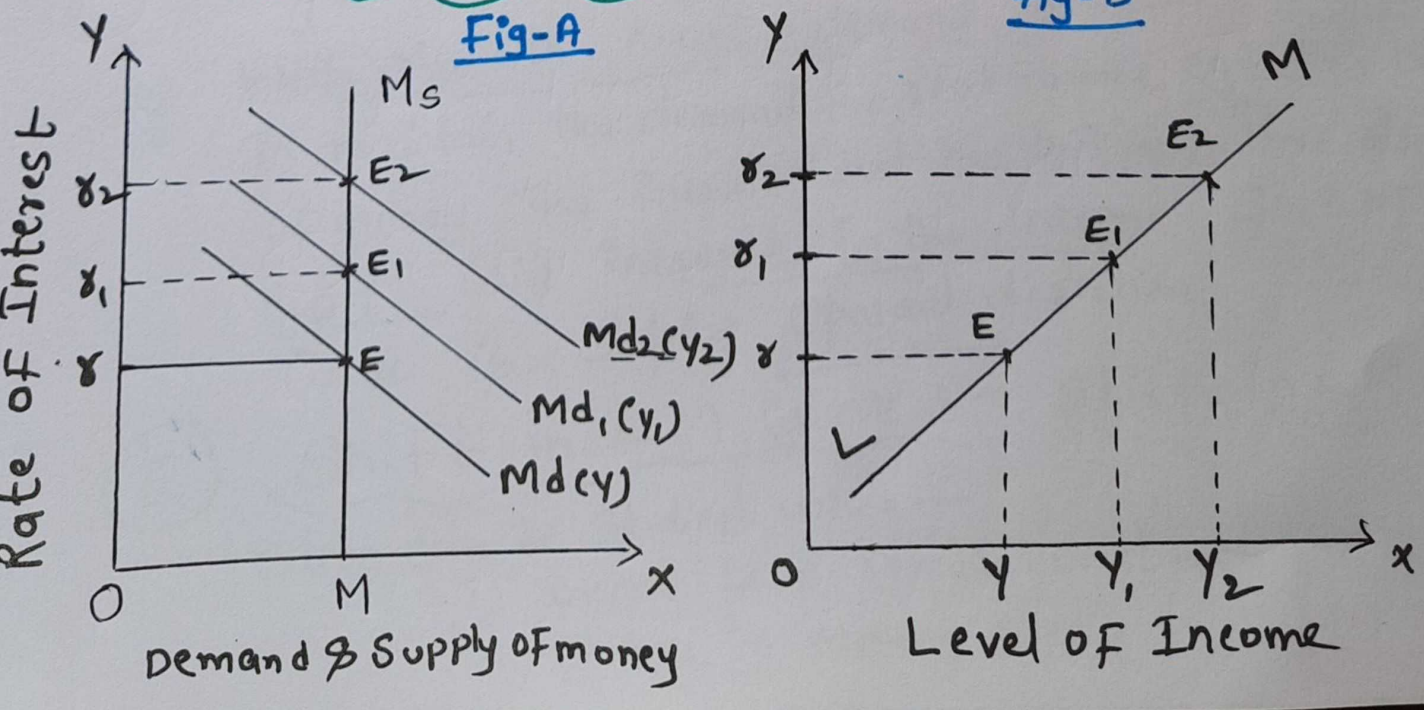
(B) **Meaning**

"LM Curve is the Locus of Pair of interest-rates and Level of income compatible with money market Equilibrium."

People demand for money for Transactionary Precautionary and speculative motive. Demand for money depend upon - Level of Income and rate of interest.

Thus $Md = f(Y, r)$

(C) **Derivation of LM Curve :-**



In above figure we observe—

1) In Fig-A, $Md$, $Md_1$ and $Md_2$ shows various Money demand Curves at different Levels of income.
2) $M_S$ is Money supply curve, which is fixed by Monetary Authority. It is Vertical straight Line.
3) When these demand curves $Md$, $Md_1$, $Md_2$ intersect MS Curves, we get Rate of Interest - $r$, $r_1$, $r_2$ at Ecquilibrium Level- $E$, $E_1$ and $E_2$.
4) In Fig-B, The interest rates are determined through money market Ecquilibrium.
5) LM Curve is sloping upward From Left to right.

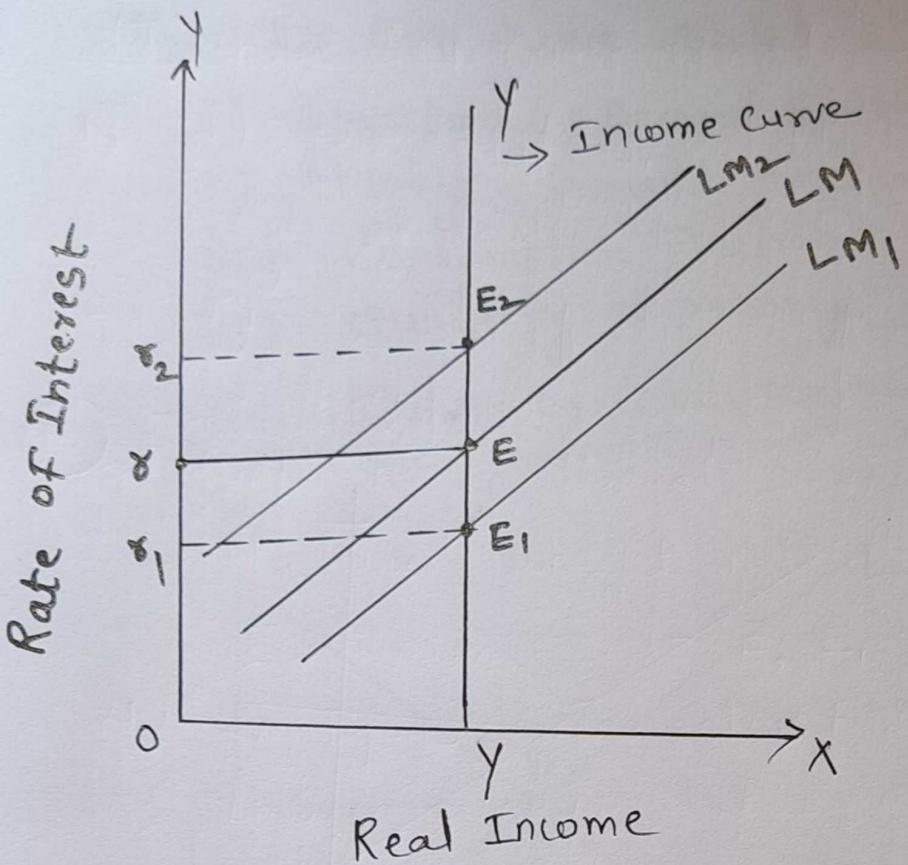
## (D) Slope of LM Curve :-

1) LM Curve is sloping upward from Left to right. It has positive slope.
2) Combination of Demand For money and supply of money with different level of income will generate LM Curve.
3) With rise in R.O.I, demand for real money decrease. To maintain the demand For real balance equal to supply of money, the income Level has to rise. Thus rise in R.O.I will increase in the income. So LM Curve is sloping upward direction.

## (E) Shift in LM Curve :- Shift in LM

Curve can be Studied when—

i) Income Level remain Constant
ii) Change in Money supply.




1) In above figure income Level is constant at OY.
2) Due to increase in money supply, LM curve shifted to Downward - $LM_1$. Here rate of interest reduced to $\gamma_1$ at Equilibrium $E_1$.
3) Due to Decrease in money supply, LM Curve shifted to Upward - $LM_2$. Here rate of interest increased to $\gamma_2$ at Equilibrium $E_2$.

Q.13 Short Note → Equilibrium in Goods market and Money market OR Determination of Equilibrium of LM & IS model.

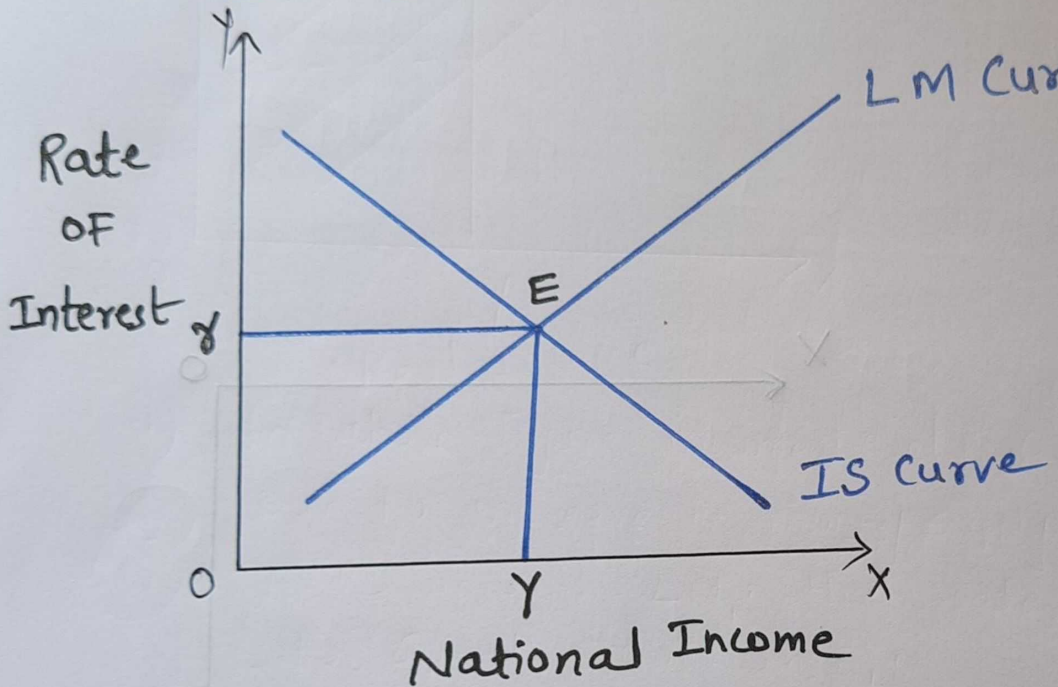
(A) Equilibrium in Goods market and Money market :-

The IS and LM Curves relates to two Variables.-
i) Income ii) Rate of Interest.
According IS-LM model, Demand for money and supply of money play an important part in determination of Income & Rate of Interest.

The IS-LM Curve Model is based on—

i) Investment - Demand function
ii) Money - Demand function
iii) Consumption function
iv) Quantity of money.

(B) Equilibrium in Goods market and Money Market—




1) On - X-axis National Income, on Y-axis, Rate of Interest are shown.
2) IS Curve is sloping downward from left to right.
LM Curve is sloping Upward From Left to right
3) IS interseet LM Curve at point E. Here Or rate of rate of interest is determined at OY level of income.
4) At Equilibrium - Agg. Demand = Agg. Out Put

Desired amount of money = Actual supply of money.

Thus IS-LM model explain important Variables Such as — Demand for money
= Supply of money.

- desire to save
- investment etc. on Rate of Interest and Level of income.

5) IS-LM Equilibrium is useful for framing Fiscal and Monetary Policies.

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