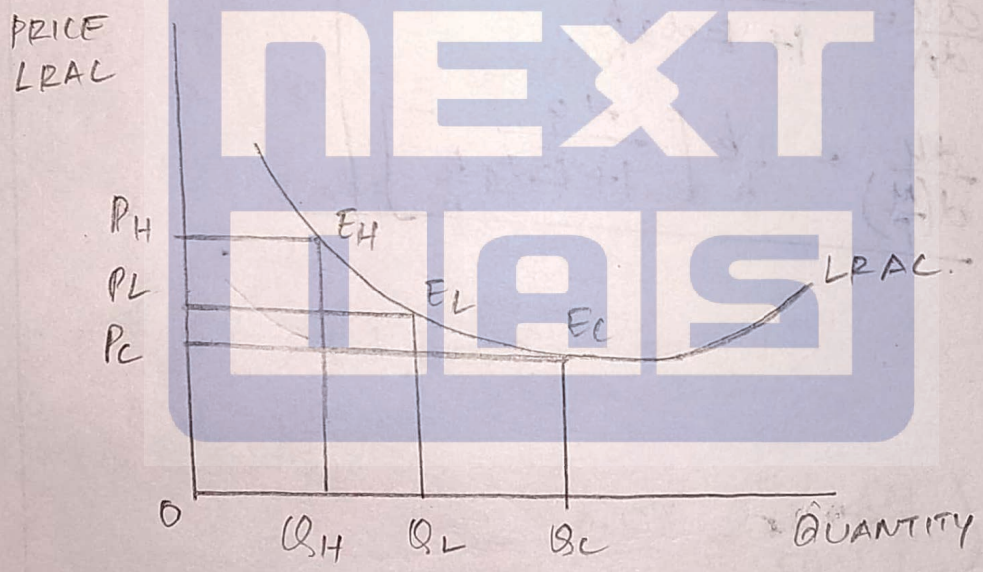
प्रश्न संख्या (Question No.)

इस भाग में कुछ न लिखें (Don't write anything in this part)

(1) a.

Ans

Bain's theory of limit pricing states that in long run, the existing firms do not set the price to be equal to minimum of long run average cost curve in order to restrict new entrants.



P_C → is the competitive long run price which is equal to minimum of LAC.

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P_L → price set by the existing firms to prevent entry

$$P_L = P_c(1+E)$$

$P_L > P_c$, and E is the premium of entry.

at, $P = P_L$, the existing firms earn a profit in long run which is the maximum profit they can earn without attracting entry.

at $P > P_L$, for example P_H, the existing firms earn a high profit which attracts the new firms to enter.

Hence, the profits earned by existing firms at P_L, act as a barrier to entry. The entrants fear that upon their entry the price may fall below P_c due to increase in production beyond Q_c. Hence, the firms do not enter.

प्रश्न संख्या (Question No.)

इस भाग में कुछ न लिखें (Don't write anything in this part)

(b)

The theory of cardinal utility was given by Alfred marshal, Pigou and Jevons, who created the concept of utils and propounded that utility can be measured (quantified)

According to cardinal utility Theory, consumer tries to maximize the total utility obtained from a commodity over a period of time. But, utility is not the only factor that determines equilibrium. it also determined by

(a) marginal valuation of commodities:

it is not the total utility but the marginal utility obtained from the last rupee spent or last unit consumed that leads to equilibrium.

at equilibrium, marginal utility obtained from last unit of money spent is equal for all commodities

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = \frac{MU_m}{P_m}.$$

(b) price ration:

at equilibrium, the price ratio of of both the commodities is equal to the ratio of their marginal utilities

$$\frac{MU_x}{MU_y} = \frac{P_x}{P_y}$$

(c) Quantity already consumed:

Quantity played an important role for Marshal, due to law of diminishing marginal utility, if a higher amount of commodity is already consumed then further utility declines at marginal level of consumption.

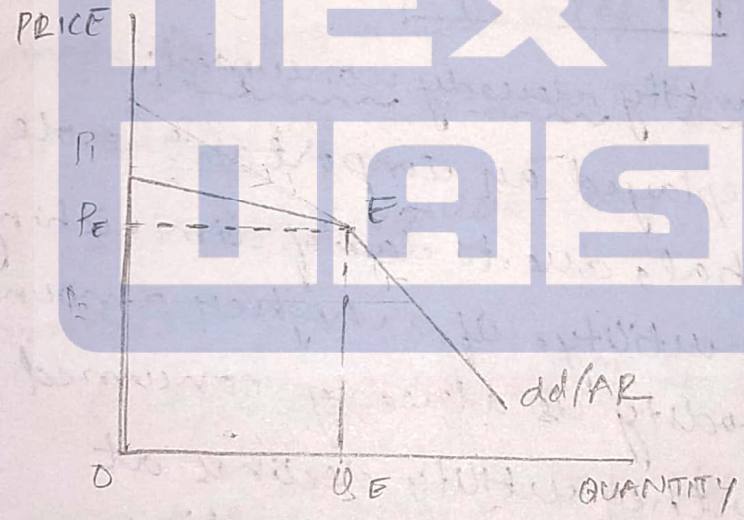
cardinal utility studies consumer equilibrium without considering their preferences. Hence, Theory of ordinal utility is considered as an improvement to it //

(c)

Sweezy's kinked demand curve model, or sticky price model was given to explain the price rigidity in a Oligopolistic model.

Assumptions:

1) Market is a pure Oligopoly and firms sell homogenous products
2) firms have identical costs and compete on output.



⇒ According to sweezy, price remains rigid at the "kink" in a oligopoly market (point E). Any price above P_E will not be followed by other

firms, hence, the firm will lose its market at a faster rate, Hence, flatter and elastic curve.

⇒ Any price below P_E will be followed by all firms, Hence, the firms doesn't make any increase in the market share at a faster pace. The increased demand at lower price is due to entry of new consumers. Hence, the price stays rigid at P_E at point $\bar{E}$.

→ The theory was criticised as it didn't explain the process of price determination. P_E was assumed and no basis was provided to reach P_E.

⇒ Not a theory of pricing, but tool for explanation of stickyness.

⇒ It doesn't explain the price & output decisions of firms

⇒ doesn't explain the height of kink.

(d)

Arrow's impossibility theorem propounds that it is impossible to define the ideal social welfare function for the society, a function which fulfills all the five criteria, unless such a function is designed by a dictator (one person)

Arrow gave the following five criteria for a ideal social welfare function:

(a) Universality: it must be applicable to everyone in the society.

(b) Responsiveness to individual preferences: social choices must change in the same way as the individual choices change.

(c) Transitivity and completeness:

If A is socially prefered over B, and B is socially prefered over C,

then it must not be socially preferred over A. The basis of social ranking shall be collection of individual ranking.

(d) Independence of irrelevant alternatives: social ranking must not change with the inclusion of irrelevant alternatives.

if A>B, B>C when it is available,

then B>A must not be true when C is not available.

(e) Meeting pareto efficiency in distribution:

According to arrow, in a democracy any ideal social welfare function cannot be derived as there are too many people involved in designing it. Hence, any one of the above principles must be violated.

(c)

puppy dog model was given by Bertrand who explained determination of equilibrium in a duopoly when there is price leadership

The leader firm sets a price considering the best response of the follower for a given price. In this manner, both the firms reach a price that maximizes the output and profits.

There are 3 types of price leaderships:

(a) low cost firm: when the firms differ in cost, they the firm with lower costs assumes the leadership and sets a lower price that has to be agreed by the follower even though the follower earns lesser profit as compared to the leader.

(b) Barometric : The firm which has knowledge about prevailing conditions in the market that enables it to forecast accurately assumes the leadership either formally through a contract or informally.

(c) Dominant firm : A large sized firm with a high market share sets the price assuming leadership and the other small firms follow the price.

Price leadership is a very realistic approach that is widely practiced in the world. it is better than cartels as there is very less incentives and possibilities to cheat. it is known as puppy-dog model as a metaphor where smaller or disadvantaged firms follows the leader as the puppies follow a leader dog.

Q4

(a)

There is no supply curve in case of a monopoly because there is no unique relationship between the quantity sold and price charged by the monopoly.

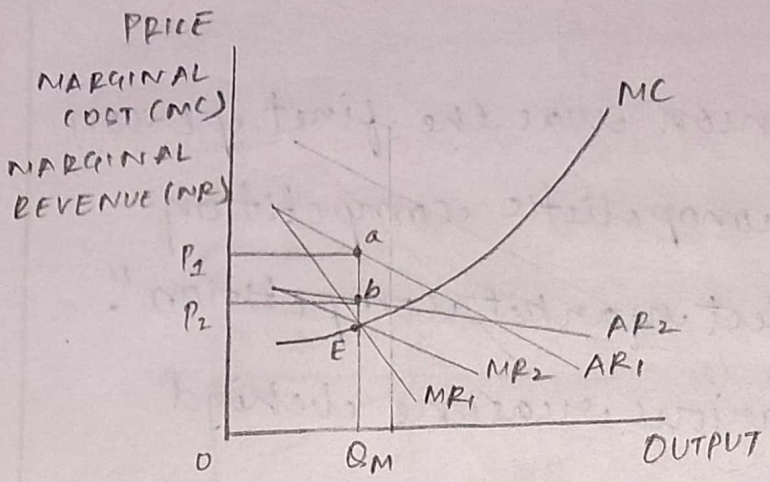
The monopoly power enjoyed by the firm enables it to charge different prices for same quantity to different consumers (difference in willingness to pay) and to sell different amount of quantities at same price

(a) Two prices and one quantity.

At Q_M, the firm charges P_1 for consumers with AR_1 and it charges P_2 for consumers with AR_2.

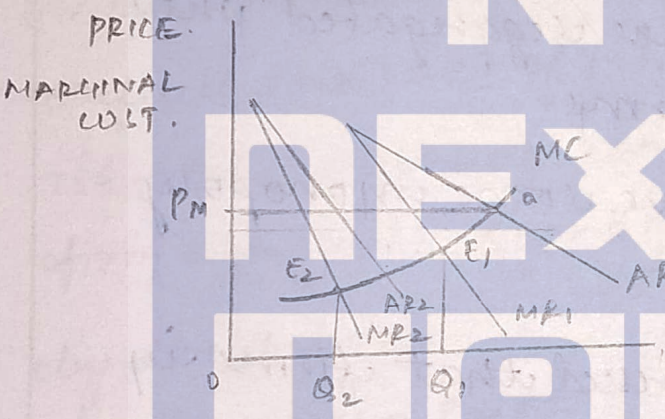
though, $MC = MR_1 = MR_2$.

$AR_1 \neq AR_2$ and Hence,



there is no unique relation.

(b) two quantities at one price:



At P_M, the firm sells Q_2 and Q_1 in different markets.

Therefore, as there is no unique relationship between price and quantity sold, monopoly has no supply curve. However, Marginal cost curve is used as a proxy to the monopoly's supply curve very often.

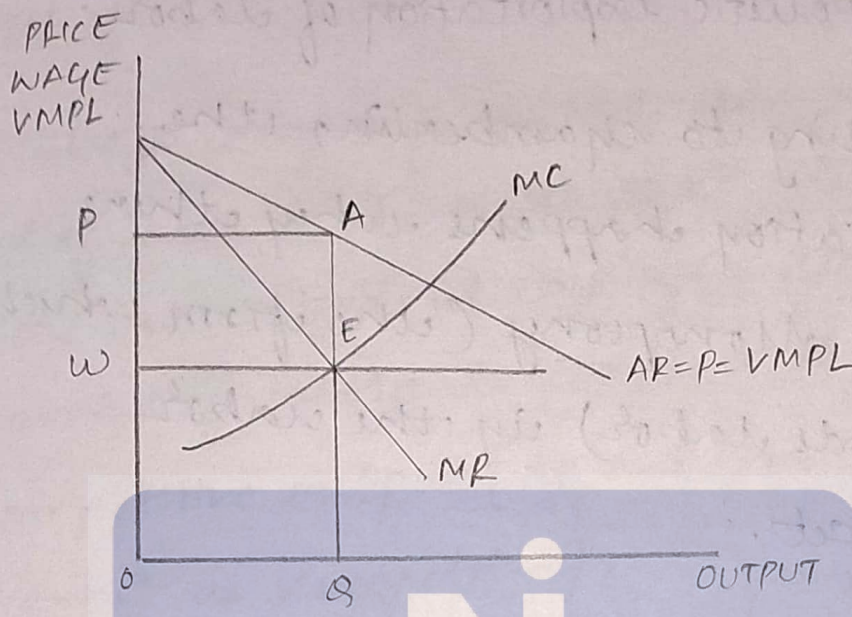
(b)

Ans

Joan Robinson was the first person to refer monopolistic competition as "imperfect market competition". He gave various reasons behind this, that,

→ the markets are not totally competitive.
→ markets are segregated into groups of firms
→ firms have some monopoly power

He expressed that firms in imperfect competition set wages of the workers below their value of marginal product (VMPL) unlike perfect competition. This is possible as the firms can influence product prices



According to robinson, the AR curve PAOQ reflects the value of MPL as it is the total revenue earned by the firm with quantity Q produced by the labor.

$$VMPL = P = AR$$

However, the firm offers the wage at W, the level of marginal revenue. $W = MR = ME$ at E

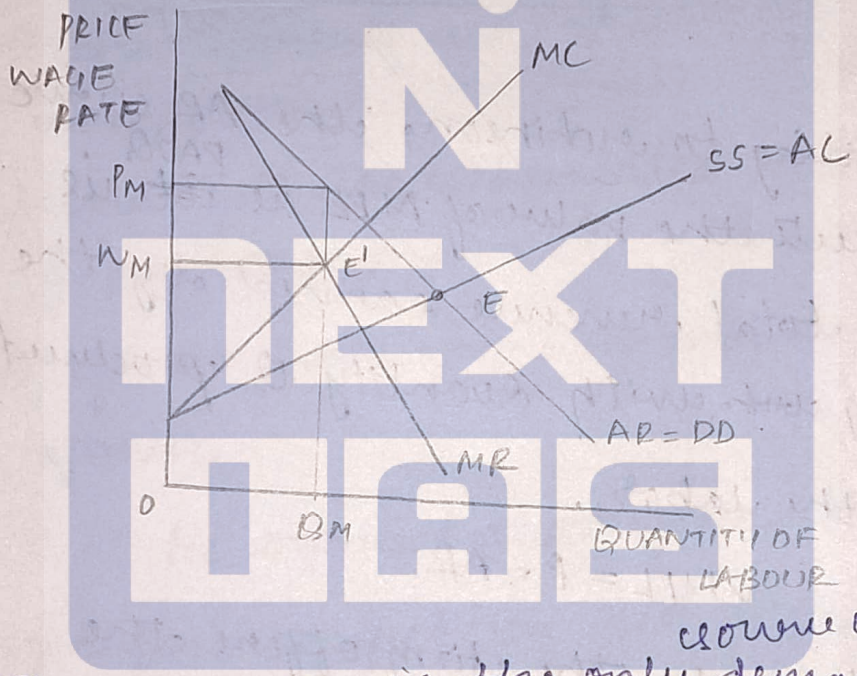
$$W = MR < AR = VMPL$$

$$\therefore \boxed{W < VMPL}$$

The area PAWE, according to robinson, corresponds to the

Monopolistic exploitation of labor.

According to chamberlin the exploitation happens when there exists Monopsony (the firm which demands labor) in the labor market.



→ The Monopsony is the only demand curve of for labor.

AR ⇒ corresponds to the labor demand curve / Average revenue.

SS ⇒ is the supply curve of labor / Average cost to Monopsony

MC ⇒ is the MC of marginal

cost of hiring labor.

The monopsony restricts the amount of labor it hires so that its costs are minized. it employees less number of labors to produce a competitive output [as the product market is competitive].

Chamberlin considered this as exploitation of labor. It is possible when there is monopsony in the labor market.

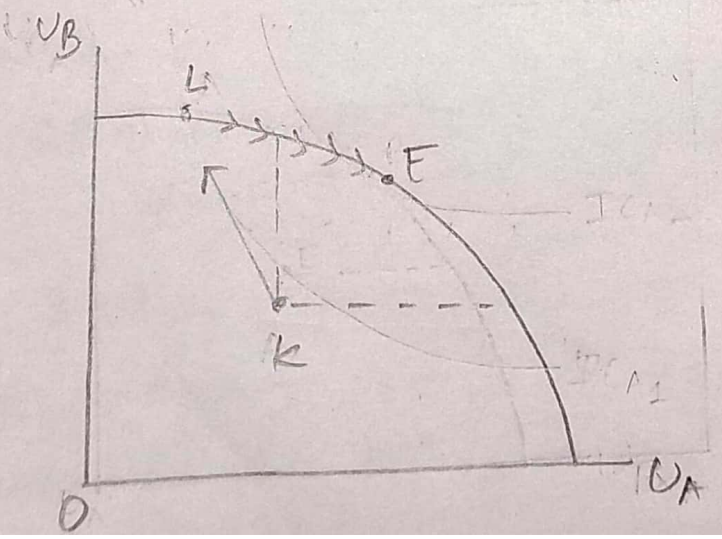
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(c)

Ans

According to Kaldor-Hicks criteria, an improved distribution can be achieved without satisfying the pareto's efficiency condition.

Kaldor-~~Hicks~~ provided compensation principle according to which if a distribution is made in a way that one person is better off and the other is worse off, but if the person who has been better off is able to compensate the one who worse off, they such an allocation/distribution is efficient.

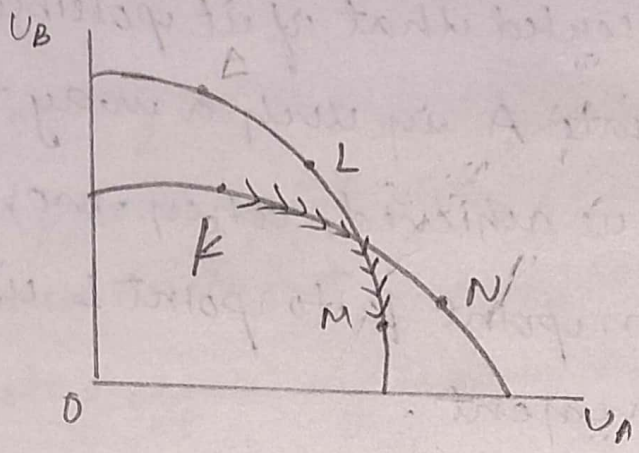


Kaldor asserted that if it possible for B to compensate A in such a way that point E is achieved, then movement from point K to point L is an improvement.

Hicks also stated similar compensation principle but from the viewpoint of A. According to Hicks, if it not possible for A to compensate B so that status quo at K i.e maintained, then a movement from K to L is an improvement.

Scitovsky identified a paradox in Kaldor-Hicks compensation principle. when two utility possibility frontier intersects, then, Kaldor-Hicks improvement condition fails.

M to K is an Kaldor improvement, if K to N is possible



after compensation.

M → K kaldor improvement.

K to M is also an improvement

if M to L is possible after compensation. To

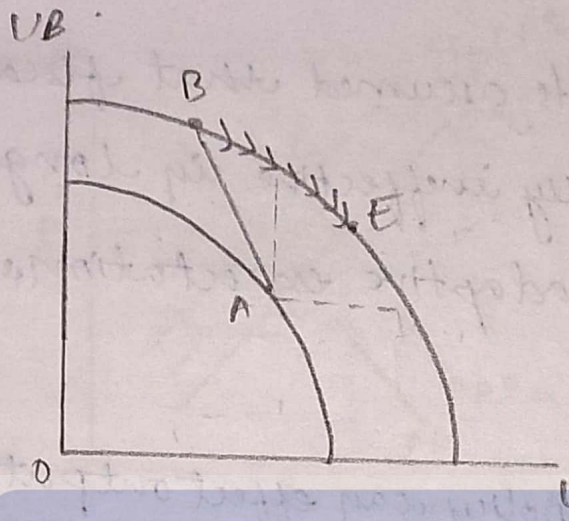
K → M kaldor improvement

~~it~~ it violates the principle of transivity, Hence the paradox.

Scitovsky provided a double check criteria to resolve the Kaldor-Hicks principles.

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According to Scitovsky, two criteria has to satisfied to call any distribution an improvement.

(a) it must fulfil Kaldor-Hicks compensation principle.

(b) Non-fulfilment of reversal test.

Kaldor-Hicks principle along with Scitovsky's double ~~ck~~ check criteria can be used to certify if a policy change that changes distribution in economy is an improvement or not.

(5) (a)

Monetarists assumed that fiscal policy is fully ineffective in long run due to adaptive expectations of workers.

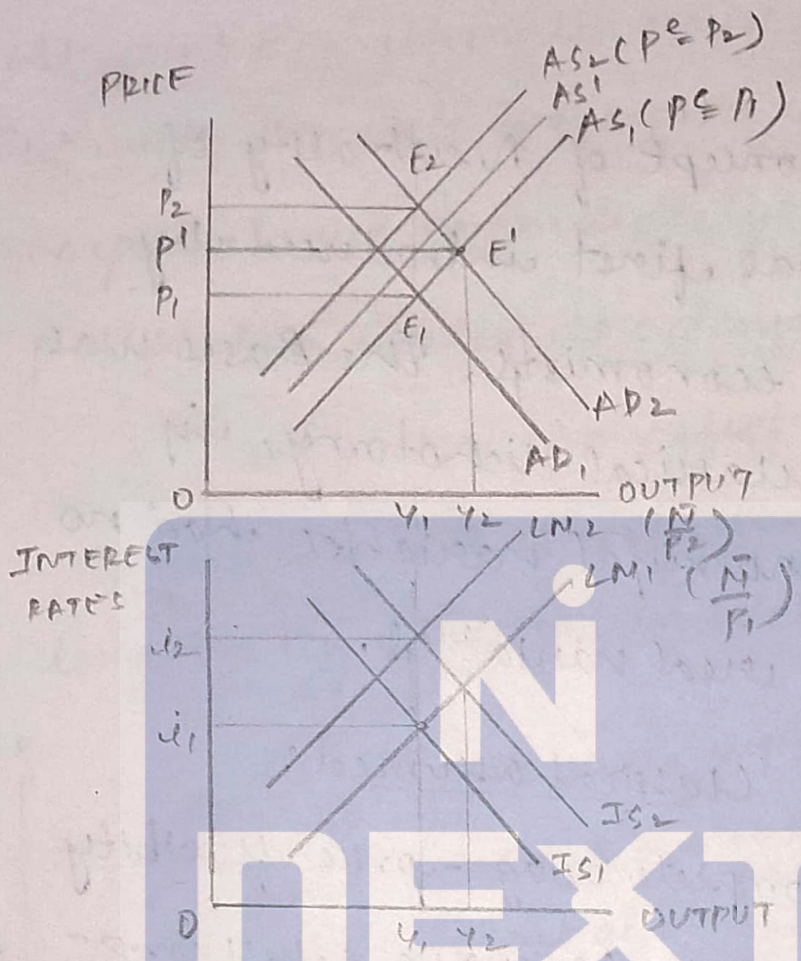
fiscal policy can effect output and prices only in shortrun, in long run, workers revise their expected price (pe) based on their expectations of current prices and past experiences.

expansionary fiscal policy: shifts

→ IS curve from IS_1 to IS_2. In shortrun the output expands to Y_2.

→ Similar, AD shifts to right from AD_1 to AD_2. and price is P'

→ However, in long run, the workers raise their expectations to P', and hence, AS curve



shifts to AS'. Workers continue to revise their P^e upwards till $P^e = P_2$. where, Output is back to Y_1. With rise in price, the LM shifts left from LM_1 to LM_2 as real money balances fall.

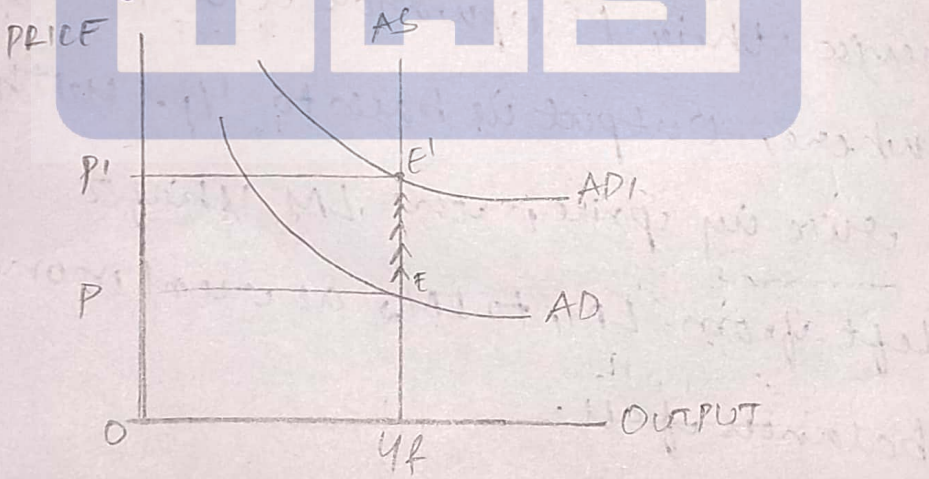
Therefore, adaptive expectations lead to ineffective fiscal policy under Monetarism.

(5)
b

The concept of Neutrality of money was first introduced by classical economists. The Basis was in the classical dichotomy, in which, nominal variables had no effect on real variables.

Classical assumed:

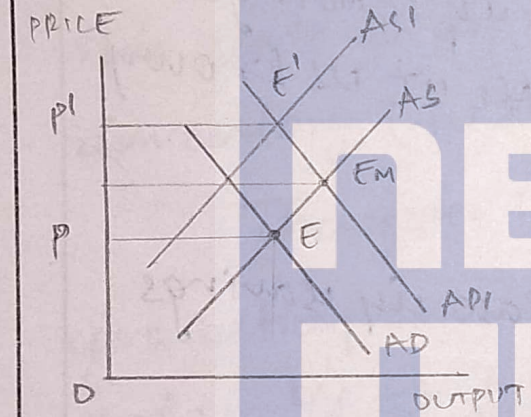
(a) complete wage-price flexibility
(b) Vertical AS curve (full employment).



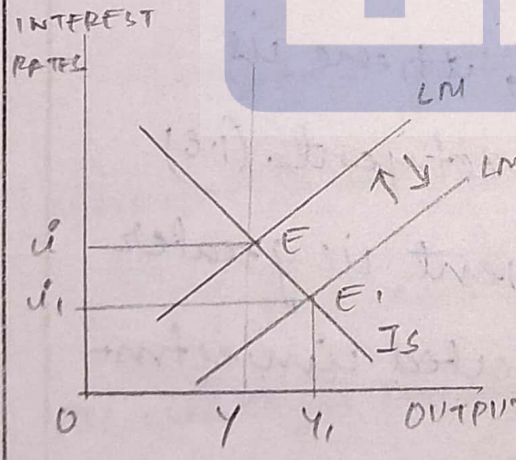
An expansionary monetary policy will lead to increase in Aggregate demand. Hence, AD shifts to AD1

At point E1, there is excess demand. But with complete wage-price flexibility the prices rise immediately from P to P1 to counter the demand.

∴ Money has no effect on Output in both short run and long run in classical models.



However, in neo-classical models money is neutral only in long run. In short run, it has real effects on Output.



Monetary Expansion:

Short run: LM to LM1
AD to AD1
Y to Y1

Long run: PE ↑
∴ AS to AS1
LM1 to LM
as real money balances fall due to increase in prices

(1)

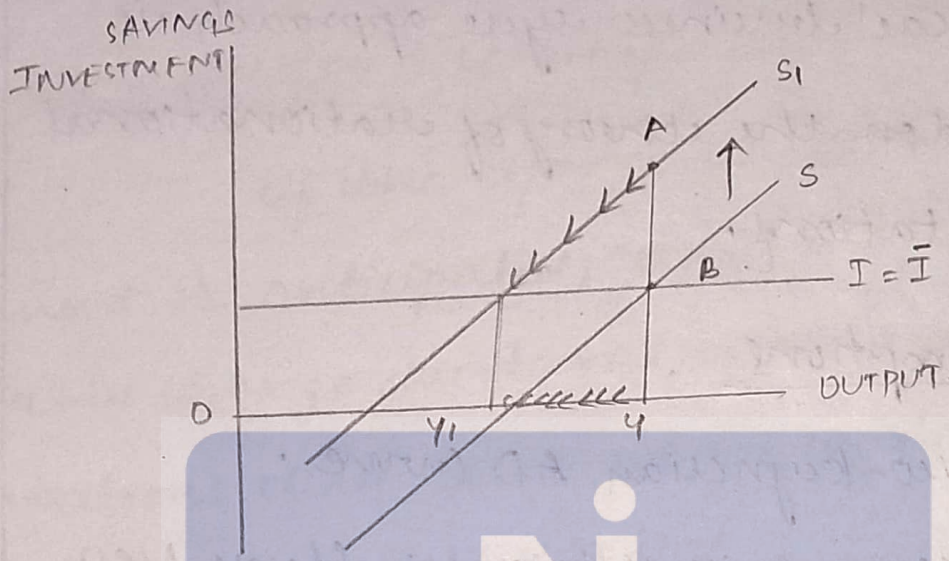
Ans

Under classical assumptions savings are a virtue because, increase in savings increases the availability of loanable funds. Thus, the interest rates fall and investment increases which raises the Output.

However, with keynesian assumptions, increase in savings reduces output. Hence it is known as Paradox of thrift:

→ if there is an increase in savings from ~~s to s~~ s to s_1

→ they output level Y_1, there is increased actual investment. (i.e) Actual investment is greater than planned/expected investment.



This leads to an increase in unplanned inventory ($IU > 0$).

Therefore, the firms cut their production due to low Aggregate demand. $\downarrow Y \Rightarrow \downarrow S$ and $\downarrow C$. and $\downarrow AD$.

Output falls by a larger amount than AD due to multiplier effect.

Hence, savings are considered as leakages in the circular flow that reduces consumption, and Aggregate demand ultimately causing Output to fall. Hence, Paradox.

(d)

Ans

Lucas' business cycle approach is based on the theory of rational expectations.

Assumptions.

(1) Neo-Keynesian AD curve.

(2) wage-price stickiness, Here Neo classical As curve.

(3) people have rational expectations

(4) All markets are interconnected, (i.e) labor, goods and money.

(5) perfect flow of information

Under the above assumptions, according to Lucas, the real changes due to business cycles are due to random or unanticipated changes.

A sudden increase in AD

may raise the output for a temporary period (short period).

If the change is permanent or anticipated, then all variable change due to rational expectations such that there is no impact on real variables.

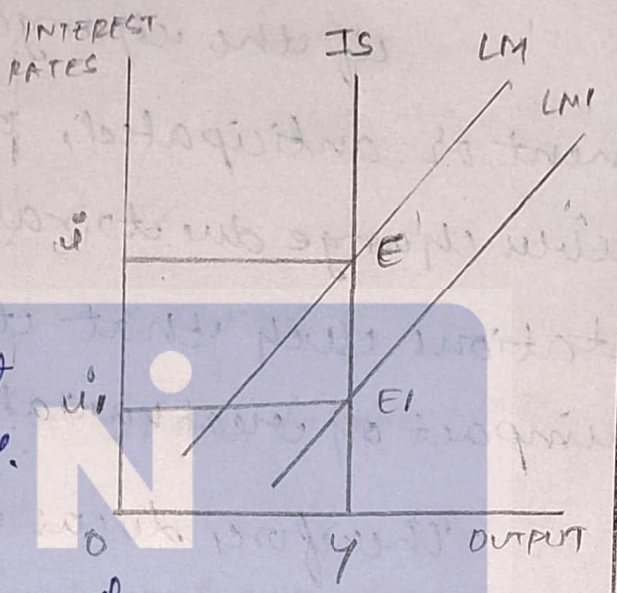
Therefore, Lucas considered business cycle to be short living and the economy will converge to steady state. Real output change can be sustained for long run if it is caused due to improved technology or increased availability of ip inputs.

Therefore, Lucas predicts that Business cycles do not long for a extended period and anticipated policy changes are ineffective.

(c) Ans

Vertical IS Curve: (classical case)

(a) Monetary expansion

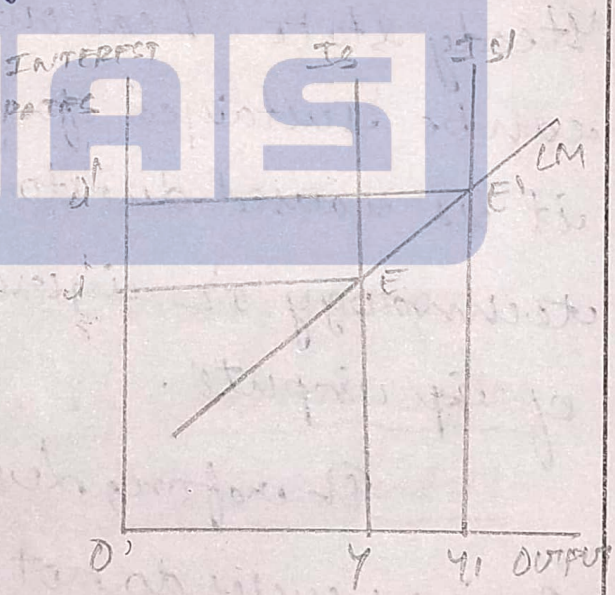


Increase in money supply, shifts LM to LM1. As IS is vertical, output stays constant at Y.

~~case~~ $\Delta Y = 0$

only prices rise. and LM shifts back. Hence, monetary policy is ineffective.

(b) fiscal expansion



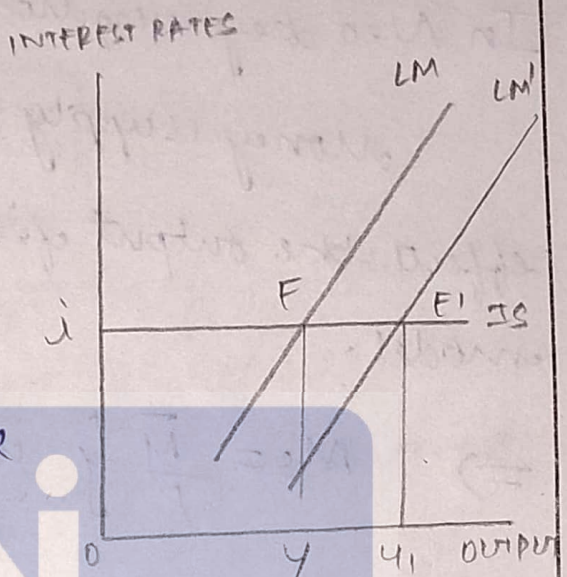
Increase in G shifts IS to IS1.

The output increased to Y_1 and interest rates to i_1.

There is no crowding out of investment.

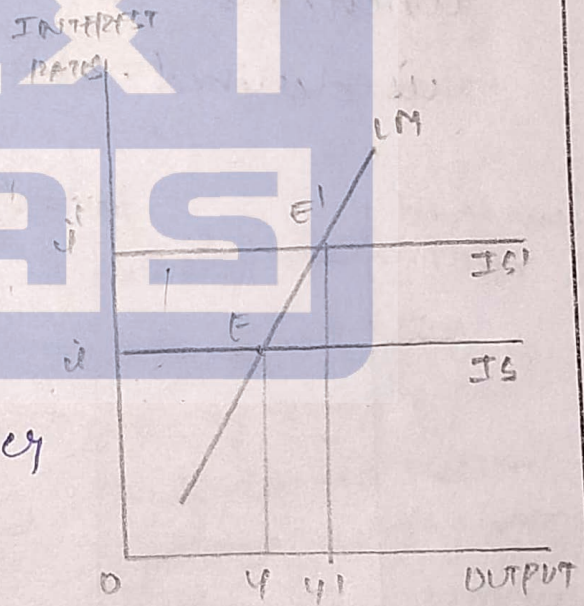
Horizontal IS Curve (~~Keynesia~~

(a) Monetary expansion



LM shifts to LM'. As IS is perfectly elastic, Y increases to Y1 immediately due to rise in AD as a result of increased money supply. Y to Y1

(b) fiscal expansion



IS shifts to IS'. Output rises from Y to Y1, but proportionately lesser than the shift. Hence there is crowding out due to rise in interest rates.

(6)

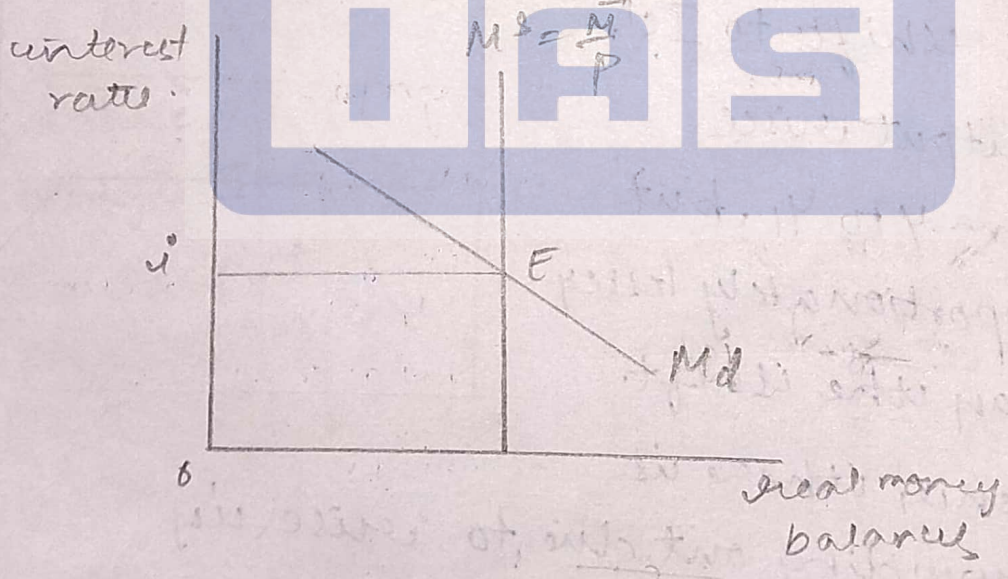
(a)

In Neo keynesian Model, money supply exogenous and effects the output from outside the model.

$\Rightarrow$ $M_s = \frac{\bar{M}}{P}$ } constant real money balances.

$M_d = kY - hi$

when, $M_s = M_d$, equation of LM is derived.



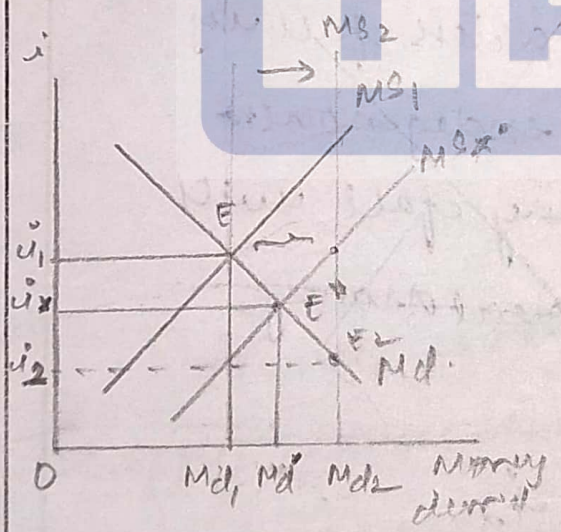
However, with endogenous money supply,

$$M_s = \frac{\bar{M}}{P} + id \cdot$$

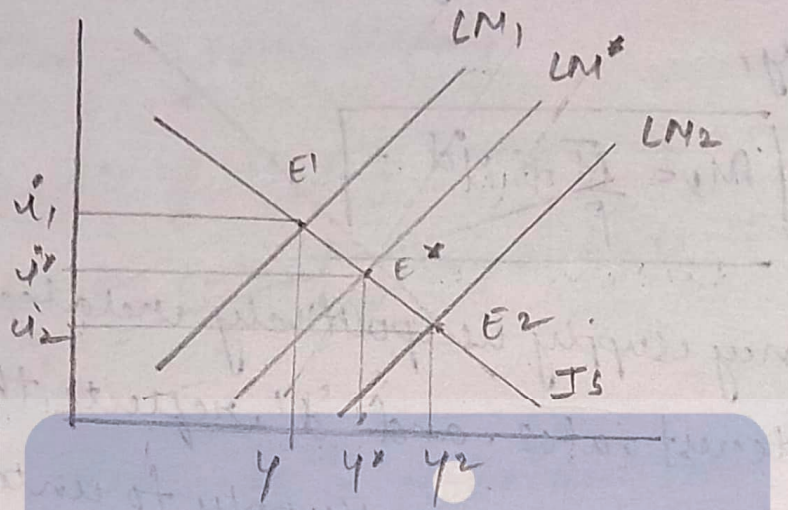
money supply is positively related to interest rates. and 'd' reflects the sensitivity of money supply to interest rates.

$$\uparrow i^o \Rightarrow \uparrow \frac{M}{P}$$

Impact on monetary policy: Impact of LM curve.



when, interest rates effect the money supply positively due to assumption of endogenousity, the money supply curve is upward sloping instead of vertical.



→ with an increase in money supply, of Ms was vertical the interest rates would have fallen to i_2 from i_1 to make sure a sufficient increase in money dd.

→ However, there is a less fall in interest rate with endogenous money supply as any fall will also reduce the ~~real money~~ money supply.

exogenous: i_1 to i_2,
M_{d_1} to M_{d_2}.

endogenous: i_1 to i_*

Md_1 to M_d^*.

Impact on output: As there is a decrease in interest rates due to monetary expansion, there is decrease in investment and decrease in Output.

exogenous: LM_1 to LM_2

E_1 to E_2

i_1 to i_2

Y_1 to Y_2

endogenous: LM_1 to LM^*

E_1 to E^*

Y_1 to Y^*

i_1 to i^*

Hence, endogenous money supply reduces the strength of monetary policy.

(6)

(b)

Ans

Keynesian theory of money demand considers money demand to be heterogenous composed of the following:-

Md ⟹ transactions dd
precautionary dd
speculative dd.

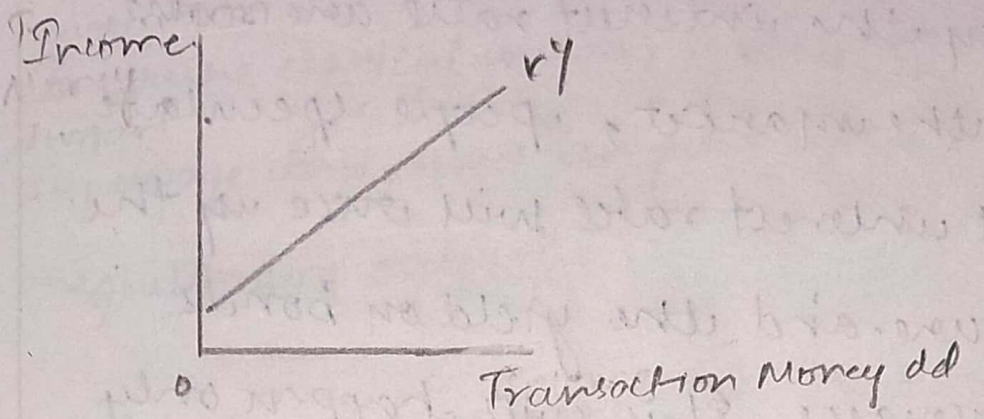
Transaction dd of money:

→ it is independent of interest rates

→ it is positively related to Income.

(i.e) ↑Y ⟹ ↑ transactions demand for money.

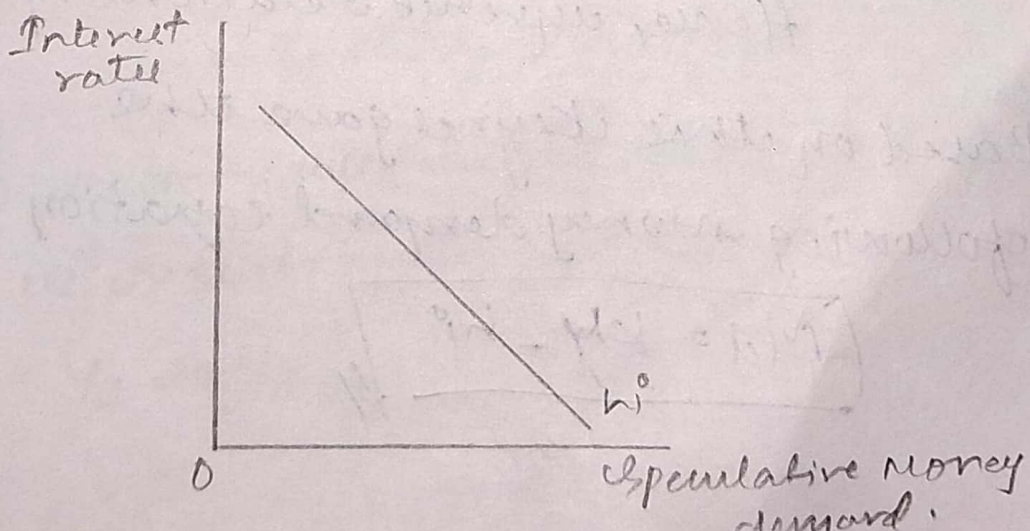
→ it represents the component of money that people hold for the purpose of making transactions



Speculative dd of money:

→ Speculative dd of money represents that component of money which people hold for speculative activities.

→ it is indirectly related to interest rates and is not affected by income changes.



when the interest rates are low in the market, people speculate that interest rates will rise in the future. and the yield on bonds increases. This will happen only when the prices of Bonds fall. People speculate capital losses in future due to fall in bond price. Hence, they demand more money. Similarly, when current interest rates are high, people speculate capital gains and demand less money and more bonds.

Hence, inverse relationship.

Based on this Keynes gave the following money demand equation

$$Md = kY - hi$$

प्रश्न संख्या (Question No.)
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(6) c

In pure classical model, any change in wage tax have impact on the equilibrium output.

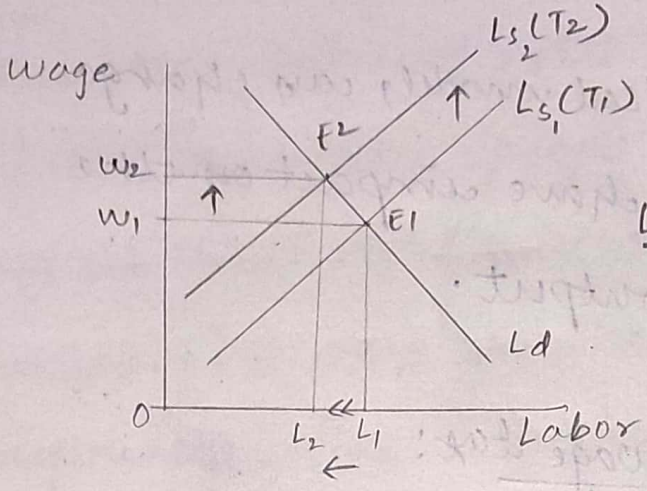
Increase in wage tax:

→ any increase in wage tax from t_1 to t_2, will result in increased wage rate, as workers demand more wage to compensate the tax rise.

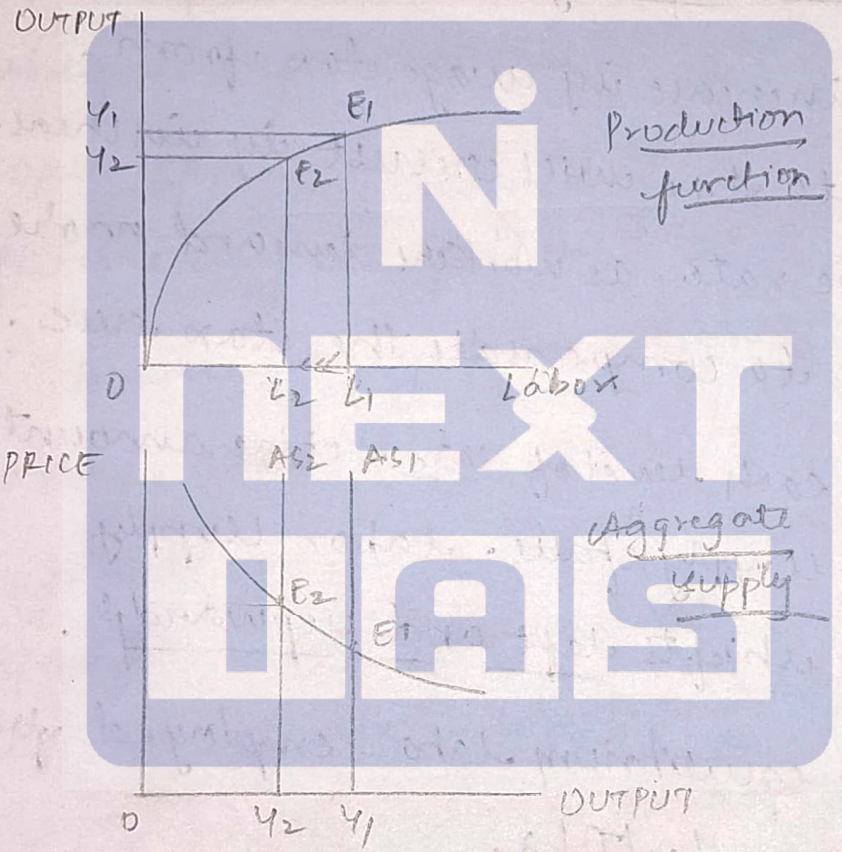
→ at each level of W_1, the amount labor supply falls. labor supply curve shifts left and upwards.

→ The equilibrium labor employed falls from L_1 to L_2.

→ with reduced employment, there is reduction in Output from Y_1 to Y_2.

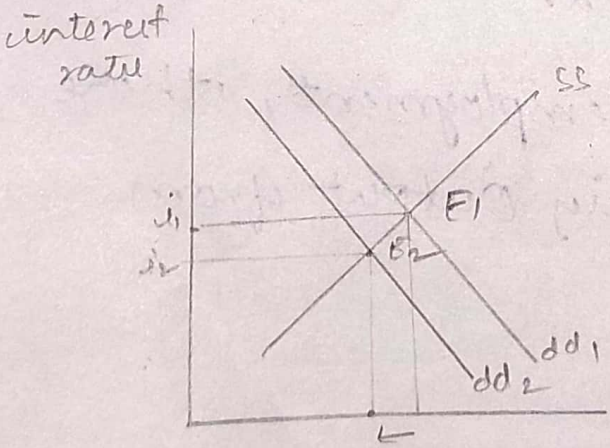


Labor Market



Production function

Aggregate supply



Loanable funds

A fall in Output will shift the AS curve to left from AS_1 to AS_2.

∴ In all the markets equilibrium shifts from E_1 to E_2.

→ A rise in tax, increases the Government revenue, and demand for loanable funds falls $(G-T)\downarrow$.

→ Hence, interest rates also fall.

If a downward sloping AD curve is assumed then price level increases from P_1 to P_2.

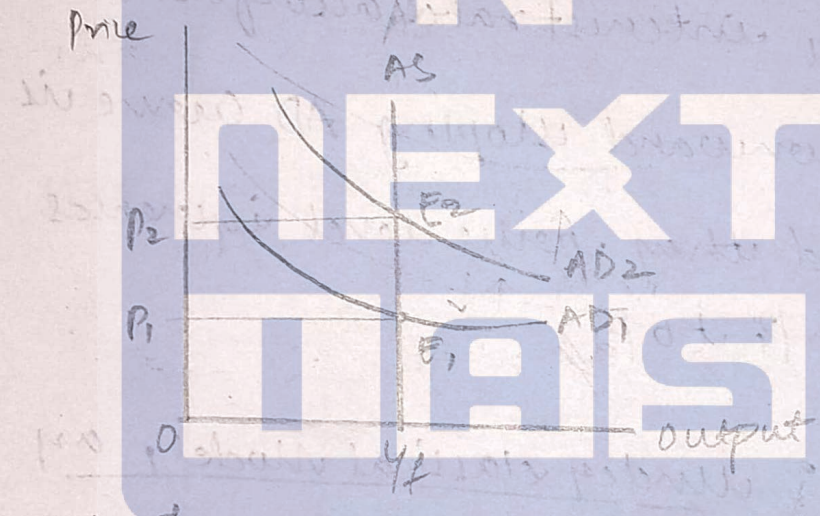
∴ Under classical model, an increase in wage tax, reduces employment and equilibrium Output.

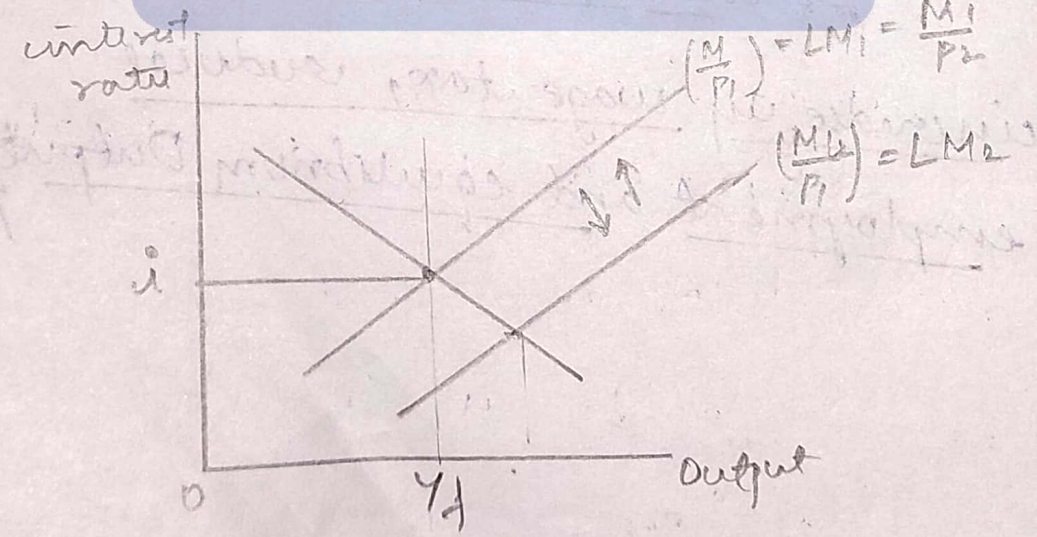
Q7

(a)

Classical Aggregate supply curve is vertical because of the assumption of complete wage-price flexibility and full employment of output at equilibrium.

Impact of Monetary policy





→ due the vertical AS curve, ~~fiscal~~ monetary policy is fully ineffective in classical model.

For instance, let us consider a monetary expansion from LM_1 to LM_2 due to increase in money supply, from M_1 to M_2.

$\therefore \left(\frac{M_1}{P_1}\right)$ to $\left(\frac{M_2}{P_1}\right)$.

The Aggregate dd curve shifts right due to excess money in the economy. at P_1, there is excess dd. Hence the price level immediately rises to P_2.

⇒ with an increase in price level, the real money supply falls. till

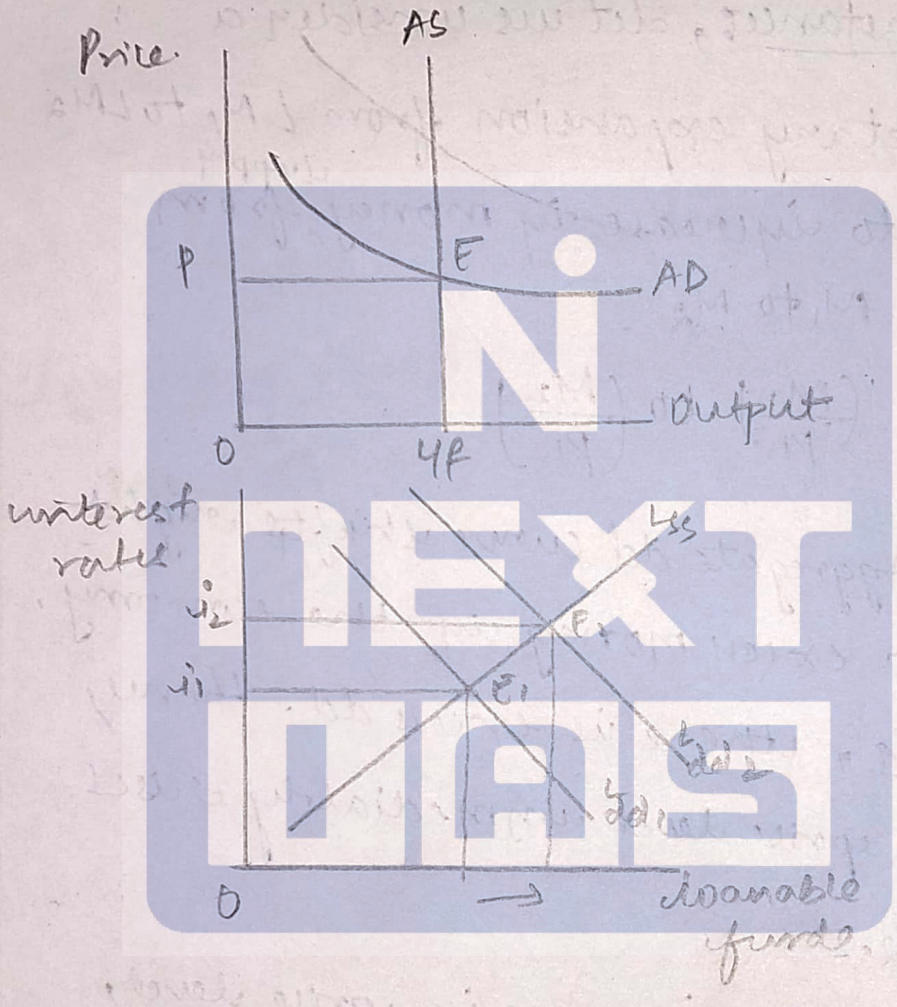
$\left(\frac{M_2}{P_1}\right)$ to $\left(\frac{M_2}{P_2}\right)$

LM_2 shifts back to LM_1

$\therefore \boxed{\frac{M_2}{P_2} = \frac{M_1}{P_1}}$.

Output stays constant and price increases

Impact of fiscal policy:



An expansionary fiscal policy, for instance, ↑G (government spending), increases the demand of loanable funds. The loanable funds dd curve shifts right,

and the interest rate increases.
any increase in interest rate has two effects

(1) increase in savings, therefore fall in consumption

(2) decrease in investment.

⇒ The increase in Government expenditure is matched by decrease in consumption and investment. Hence, AD doesn't change.

$$\Delta Y = \Delta C + \Delta I$$
$$\therefore \Delta AD = 0$$

Therefore, Monetary and fiscal policy, both are ineffective in classical model due to vertical AS curve.

(b)

In pure Keynesian model, the monetary policy was fully ineffective due to the presence of liquidity trap in the economy.

Keynes gave the theory during Great depression, when the market sentiments were low, and people were averse of buying bonds due to expected capital losses.

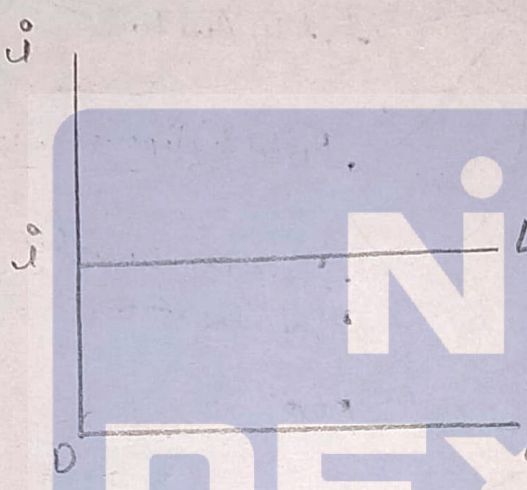
Hence, all the money was held in currency. There was infinite money demand, and speculative demand of money was perfectly elastic.

The Monetary policy was ineffective because interest rates were not responding to changes in

Money supply.

$\frac{M}{P})d = kY - hi$

under liquidity trap $h=0$.
and LM curve is horizontal.

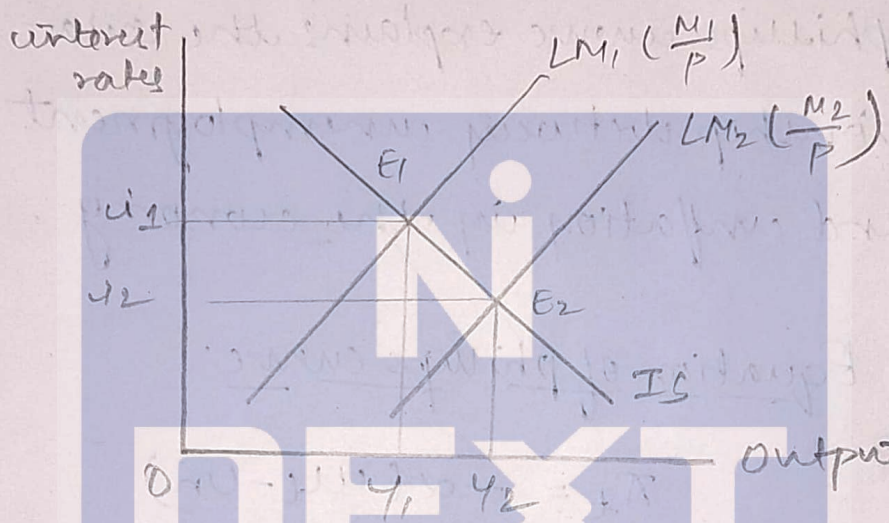


However, the Neo keynesians expound-ded the theory without assumption of liquidity trap. In such situations $h>0$ and LM curve is upward sloping.

Monetary policy under Neo keynesian:

→ An expansionary monetary policy will shift LM from LM_1 to LM_2

The equilibrium shifts from E_1 to E_2. The output increases from Y_1 to Y_2.



Hence, unlike pure keynesian model, monetary policy in Neo-keynesian assumptions has effect on output and interest rates.

(9) (b)

Ans phillips curve explains the relationship between unemployment and inflation in the economy.

Equation of phillips curve:

$$\pi_t = -\alpha(u_t - u_n)$$

$\pi_t \rightarrow$ inflation in period t

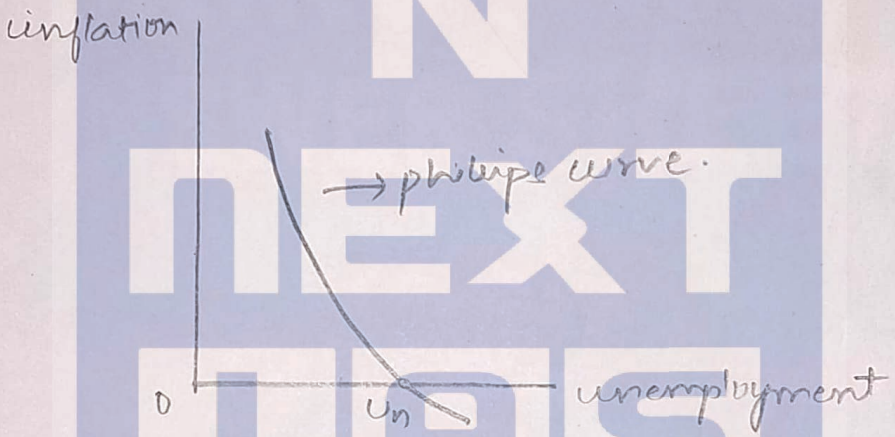
$u_t \rightarrow$ unemployment at period t

$u_n \rightarrow$ natural rate of unemployment

$\alpha \rightarrow$ correlation variable.

According to phillips, if unemployment is higher than the natural rate. (i.e) $(u_t - u_n) > 0$,

then, $\pi_t < 0$, there is less inflation (deflation) in the economy. whereas, if unemployment rate is less than natural rate, $(U_t - U_n) < 0$, then $\pi_t > 0$, there is inflation in the economy.



In classical model, there is an assumption of full employment, and zero involuntary unemployment.

→ The unemployment rate is either zero or always at its natural rate.

Hence, $\boxed{u_t = u_n}$

$$\pi_t = -\alpha(u_t - u_n)$$

$$\boxed{\pi_t = 0} \quad \because u_t = u_n.$$

In such situation, the relationship between inflation and unemployment fails. and philips curve doesn't stand.

Similar failure of philips curve is possible under keynesian models with the assumption of price and wage rigidity. $\boxed{\pi_t = 0}$.

Hence, $\boxed{u_t = u_n.}$

∴ The philips curve in classical and keynesian model is same.

There is no unique relation between inflation and unemployment//.