NEXT IAS

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(To be filled by candidate)

Name of Candidate : Vaibhav Rathore

Roll No. : ECFC22L3004

Registration Number : NIAS220000 5648 **Date of Examination :** 26/06/2022

Exam Centre : Old Rajinder Nagar ☐ Online ☑

CSE (Main) Test Series - 2022

Test-1

ECONOMICS OPTIONAL

Microeconomics/Macroeconomics

Time Allowed : Three Hours **Maximum Marks :** 250

QUESTION PAPER SPECIFIC INSTRUCTIONS

(Please read each of the following instructions carefully before attempting questions)

There are **EIGHT** questions divided in two Sections and printed in ENGLISH.

Candidate has to attempt FIVE questions in all.

Question Nos. **1** and **5** are compulsory and out of the remaining, THREE are to be attempted choosing at least ONE form each Section.

The number of marks carried by a question/part in indicated against it.

Answers must be written in the medium authorized in the Admission Certificate which must be stated clearly on the cover of this Question-cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in a medium other than the authorized one.

Word limit in questions, wherever required, may be drawn/given in the space provided for answering the question itself.

Attempts of questions shall be counted in sequential order. Unless struck off, attempt of a question shall be counted even in attempted party. Any page or portion of the page left blank in the question-cum-Answer Booklet must be clearly struck off.

(For filling by Examiners only)

Q. No.	Page No.	Maximum Marks	Marks	Total	Signature
1. (a)	4	10			
1. (b)	6	10			
1. (c)	8	10			
1. (d)	10	10			
1. (e)	12	10			
2. (a)	14	15			
2. (b)	17	15			
2. (c)	20	20			
3. (a)	23	20			
3. (b)	26	10			
3. (c)	28	20			
4. (a)	15	15			
4. (b)	34	20			
5. (a)	37	10			
5. (b)	39	10			
5. (c)	41	10			
5. (d)	43	10			
5. (e)	45	10			
6. (a)	47	20			
6. (b)	50	10			
6. (c)	52	20			
7. (a)	55	20			
7. (b)	58	15			
7. (c)	61	15			
8. (a)	64	15			
8. (b)	67	15			
8. (c)	70	20			
			Grand Total		

Remarks

Observations:

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SECTION-A: MICROECONOMICS

1. (a) Substitution effect is the deciding factor about the nature of goods. Comment. (10)

Substitution effect is used in the context of 2 commodities world. Let say there are 2 commodities X & Y & if the Price of commodity X is changed keeping the Price of Y as constant, then there will be a change in demand of commodity Y due to change in the Price ratio P_X/P_Y. This situation reflects the Substitution effect.

However, Substitution effect (S.E.) is always negative irrespective of the type of commodity. ~~This is because, increase in the Price of commodity X~~ The negative S.E. represents an inverse relation between Price & Output.

Infact, it is the Income effect (I.E.) which is the deciding factor about the nature of goods.

→ Incase of Normal goods, both I.E. & S.E. are negative, leading to overall negative Price effect (P.E.).

→ In case of Inferior goods (not Giffen), I.E. is Positive, while S.E. is negative. But, S.E. dominates I.E, ∴ P.E. is negative

→ In case of Giffen goods, I.E. is Positive & it dominates negative S.E. leading to a Positive P.E.

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Thus, I.E. determines the nature of commodity rather than the S.E. which is always negative irrespective of the type of commodity.

(b) "Marshallian stability ensures Walrasian stability." Do you agree? (10)

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Marshallian equilibrium is Quantity determined. That is, According to Marshall equilibrium is determined based on the willingness to Pay of a Consumer for a given level of Quantity & willingness to sell of a Producer of the given Quantity.

whereas, Walrasian equilibrium is Price determined

In case of normal market conditions, that is, when Supply curve is upward sloping & Demand curve is downward sloping, Marshallian & Walrasian results are same & there exists stable equilibrium

Similarly, when demand curve is upward sloping & Supply curve is downward sloping, both Marshall & Walras exhibit unstable equilibrium.

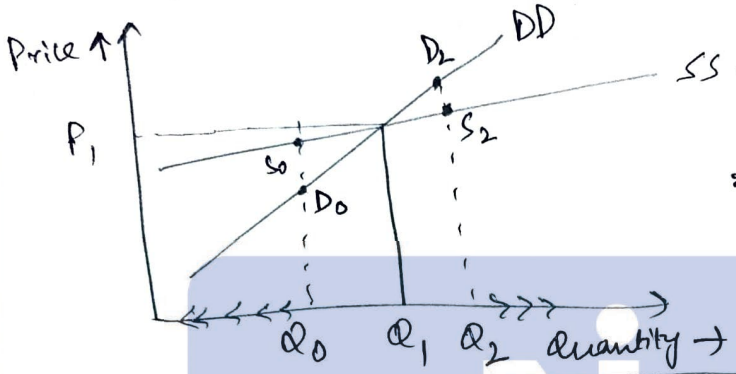
However, when both demand & Supply curves are sloping in the same direction with different elasticities, the ~~Marshallian stability~~ Marshall & Walras gives opposite results.

Situation	Marshall	Walras
① DD & SS curves are upward sloping with DD steeper than SS curve	Unstable	Stable
② DD & SS curves - upward sloping - SS steeper than DD	Stable	Unstable
③ DD & SS curve - downward sloping - DD steeper than SS	Stable	Unstable
④ DD & SS curve - downward sloping - ~~DD~~ SS steeper than DD.	Unstable	Stable

Candidates must not write on this margin

Note:- DD → Demand curve ; SS → Supply curve.

Case-I :- Both DD & SS are upward sloping with DD steeper than SS.

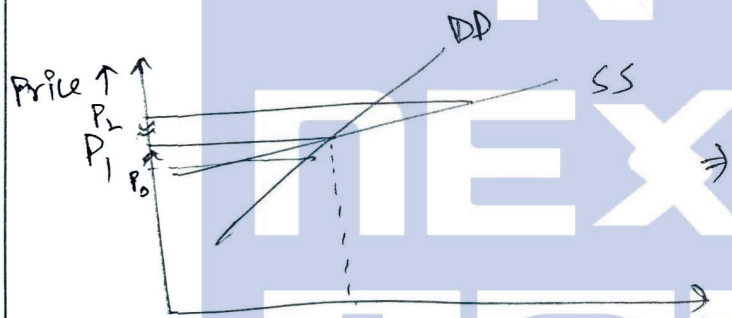


At $Q_2 > Q_1$

$D_2 > S_2 \Rightarrow$ Quantity traded will rise.

⇒ Unstable equilibrium

Marshallian equilibrium



At Price, $P_2 > P_1$

⇒ Excess Supply

⇒ Price falls

⇒ Stable equilibrium

Walrasian equilibrium

Hence, Marshallian stability need not always ensure Walrasian stability.

(c) What are the different measures of monopoly power? (10)

Candidates must not write on this margin

Monopoly refers to a situation when there are few sellers in the market, & a single firm usually dominates the Power.

Due to this the firm can charge Price above its Marginal Cost ($P > MC$) using its Monopoly Power.

* **Measures of Monopoly Power**

1. **Lerner's Index** $\Rightarrow \boxed{\mu = \frac{P - MC}{P}}$

Total Revenue (T.R.) $= P \cdot Q$

$\Rightarrow M.R = \frac{d}{dQ}(P \cdot Q) = P + Q\frac{dP}{dQ}$

$\Rightarrow MR = \frac{1}{P}\left[1 + \frac{Q}{P}\frac{dP}{dQ}\right]$

$\frac{Q}{P}\cdot\frac{dP}{dQ} = \frac{1}{e}$; where $e \rightarrow$ Price elasticity of demand

$\Rightarrow MR = \frac{P}{P}\left[1 + \frac{1}{e}\right]$

At equilibrium, $MR = MC$

$\Rightarrow MC = P\left[1 - \frac{1}{|e|}\right]$ {$\because e$ lies b/w 0 & 1.}

For different firms; $MC_1 = MC_2$

$\Rightarrow P_1\left[1 - \frac{1}{|e_1|}\right] = P_2\left[1 - \frac{1}{|e_2|}\right]$

If $e_1 > e_2 \Rightarrow \frac{1}{e_1} < \frac{1}{e_2} \Rightarrow 1 - \frac{1}{e_1} > 1 - \frac{1}{e_2}$

$\Rightarrow P_2 > P_1$

2. ~~Herfindahl's~~

Candidates must not write on this margin

② Herfiendahl's Index :- It is calculated on the basis of Market size of the firm.

$$H = \frac{s_i^2}{\sum s_i^2}$$

$s_i \rightarrow$ Market size of firm i

Eg:- If total Market Size = 20
Market size of firm = 5.

$$\Rightarrow H = \frac{5^2}{20^2} = \frac{25}{400} = \frac{5}{80}$$

③ Steepness of Demand (AR) curve :-



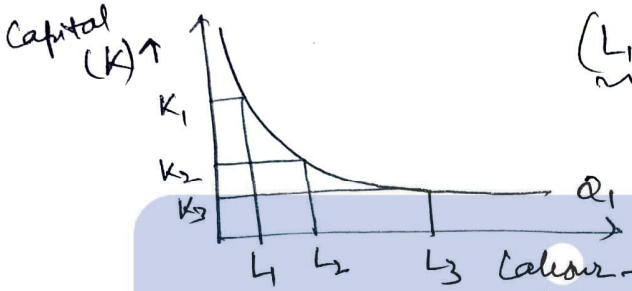
Clearly, in case of steeper AR curve, ability of a firm to charge over & above MC is more than that in case of flatter AR curve.

$\Rightarrow$ steeper AR curve $\longrightarrow$ Greater Monopoly Power.

(d) Explain if diminishing marginal productivity is necessary or sufficient for diminishing MRS, responsible for convexity of isoquant. (10)

Candidates must not write on this margin

Isoquant curve represents the relationship between the factors of Production, that is, Capital (K) & Labour (L) such that the output Produced remains same.



(L_1, K_1), (L_2, K_2), (L_3, K_3)

↓

Possible combinations of Labour & Capital such that Quantity Produced is Q_1.

(K_1, L_1); (K_2, L_2); (K_3, L_3)

Diminishing Marginal Productivity of Labour (MP_L) & Capital (MP_K) is a necessary situation for convexity of standard Isoquant.

$$MRTS_{L,K} = \frac{MP_L}{MP_K}$$

However, it is not the only sufficient condition for convexity of Isoquant.

There are other factors also which plays an important role in determining the nature of Isoquant.

These factors are:-

① Local Non-satiation (More is better)

② $MP_L > 0$ & $MP_K > 0$

∴ Diminishing MP_L & MP_K though are necessary but not sufficient conditions.

Candidates must not write on this margin

(e) Examine the Kaldor's equation of distribution. (10)

Assumptions :-

① Economy is at full equilibrium.

② Equilibrium is determined through Keynesian mechanism, that is, equilibrium takes place when **Investment (I) = Savings (S)**

③ m.p.s. of Wage earners (s_w) < m.p.s. of Profit earners (s_p).

$S = s_w \cdot W + s_p \cdot P$; W → Wage, P → Profit.

$Y = W + P \Rightarrow W = Y - P$.

$I = S \Rightarrow I = s_w \cdot (Y-P) + s_p \cdot P$

$\Rightarrow I = s_w \cdot Y + (s_p - s_w)P$

$\Rightarrow \frac{I}{s_p - s_w} - \frac{s_w \cdot Y}{s_p - s_w} = P$.

$$\Rightarrow \boxed{P/Y = \frac{I/Y}{s_p - s_w} - \frac{s_w}{s_p - s_w}}$$ → Kaldor's Profit Share Eqⁿ

analysis :- ① Higher level of Investment in the economy will lead to higher Profit Share.

② If $s_p < s_w \Rightarrow$ Investment needs to be reduced to increase Profit share, which is counter intuitive.

③ Firms will increase their Profit share through higher investment, till the workers are willing to accept a given level of minimum wage rate ($W_{min.}$).

Candidates must not write on this margin

Criticisms of the model:-

(1) Weak empirical evidence. Assumes $\Delta p > \Delta w$ which need not always hold true & $\Delta w > \Delta p$ gives counter intuitive results.

(2) Role of improved technology in the economy is not considered.

(3) Role of Trade Unions is neglected. Because, with increased Profit Share of the capitalist, the workers will ~~accept~~ demand higher wages.

NEXT IAS

Q.2 (a) Explain the difference between Cournot model of duopoly with similar product and differentiated product. (15)

Candidates must not write on this margin

Cournot Model with Similar Product

Assumptions:- ① Homogeneous Product.
② Simultaneous Quantity setting in the market.

$\Rightarrow P = A - B(Q_1 + Q_2) = A - BQ$.

③ Marginal Cost = Constant (c); Fixed Cost (FC) = 0.

④ 2 firms in the Market.

$\Rightarrow \pi_1 = P \cdot Q_1 - C \cdot Q_1 = (A - BQ) \cdot Q_1 - C \cdot Q_1$

$\Rightarrow \pi_1 = AQ_1 - [B(Q_1 + Q_2)] Q_1 - CQ_1$

$\Rightarrow \pi_1 = AQ_1 - BQ_1^2 - BQ_1Q_2 - CQ_1$

$\Rightarrow \frac{\partial \pi_1}{\partial Q_1} = A - 2BQ_1 - BQ_2 - C = 0$

$\Rightarrow \boxed{Q_1 = \frac{A-C}{2B} - \frac{Q_2}{2}}$ — ① → B.R. fn of firm 1.

Similarly, using symmetricity,

$\frac{\partial \pi_2}{\partial Q_2} = 0 \Rightarrow \boxed{Q_2 = \frac{A-C}{2B} - \frac{Q_1}{2}}$ — ② → B.R. fn of firm 2.

Solving for ① & ②

we get, $(Q_1, Q_2) = \left(\frac{A-C}{3B}, \frac{A-C}{3B}\right)$

$\Rightarrow Q = Q_1 + Q_2 = \frac{2}{3}\left(\frac{A-C}{B}\right)$

↓

$\frac{2}{3}$rd of the extent of Market.

$\Rightarrow \pi_1 = \left[A - B \cdot \frac{2}{3}\left(\frac{A-C}{B}\right)\right] \cdot \frac{A-C}{3B} - C \cdot \left(\frac{A-C}{3B}\right)$

Candidates must not write on this margin

$$= \left(\frac{A+dC-C}{3}\right)\left(\frac{A-C}{3B}\right)$$

$$= \frac{(A-C)^2}{9B}; \quad \pi_2 = \frac{(A-C)^2}{9B}$$

Cournot Model with differentiated Product :-

↳ Differentiated Product ; close substitutes.

↳ MC = 0 ; FC = 0 ⇒ **T.C = 0**

$P_1 = a_1 - 2q_1 - \frac{q_2}{2}$ } a_1, a_2 → Attributes of firm ① & ② respectively.

$P_2 = a_2 - q_2 - \frac{q_1}{2}$

$\pi_1 = P_1 q_1 = a_1 q_1 - q_1^2 - \frac{q_1 q_2}{2}$

$\Rightarrow \frac{\partial \pi_1}{\partial q_1} = a_1 - 2q_1 - \frac{q_2}{2} = 0 \Rightarrow \boxed{q_1 = \frac{a_1}{2} - \frac{q_2}{4}}$ — ③

↳ B.R. f^n of firm ①

$\pi_2 = P_2 q_2 = a_2 q_2 - q_2^2 - \frac{q_1 q_2}{2}$

$\Rightarrow \frac{\partial \pi_2}{\partial q_2} = 0 \Rightarrow a_2 - 2q_2 - \frac{q_1}{2} = 0 \Rightarrow \boxed{q_2 = \frac{a_2}{2} - \frac{q_1}{4}}$ — ④

↳ BR f^n of firm ②

Solving for equation ③ & ④

$\Rightarrow q_1 = \frac{a_1}{2} - \frac{1}{4}\left[\frac{a_2}{2} - \frac{q_1}{4}\right]$

$\Rightarrow q_1 = \frac{a_1}{2} - \frac{a_2}{8} + \frac{q_1}{16}$

$\Rightarrow \frac{15}{16} q_1 = \frac{a_1}{2} - \frac{a_2}{8} \Rightarrow q_1 = \frac{8}{15}\left[a_1 - \frac{a_2}{4}\right]$

Similarly, $q_2 = \frac{8}{15}\left[a_2 - \frac{a_1}{4}\right]$

Candidates must not write on this margin

Thus, in case of Cournot Model with similar Product, both the firms Produces same level of output & their Profits is also same.

$\left(q_1 = q_2 = \frac{Q}{2}\right)$ & $\left(\pi_1 = \pi_2 = \frac{\pi}{2}\right)$

However, in case of differentiated Product, both the firms will be Producing different level of output & also, ~~their~~ their Profits will be different due to difference in their attributes. $[q_1 \neq q_2$ & $\pi_1 \neq \pi_2]$.

NEXT IAS

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Q.2 (b) Examine how the profit, wage and rent in Ricardian system move differently with the movements in the level of income. (15)

Assumptions of Ricardian Model :-

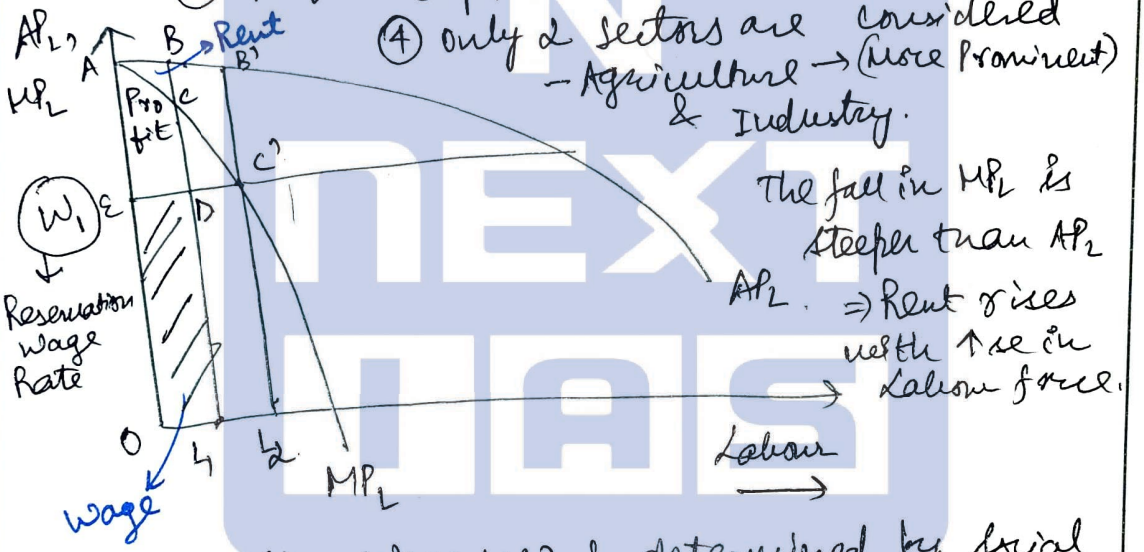
① Rent is defined as the difference between Average Productivity of Labour (AP_L) & Marginal Productivity of Labour (MP_L).

$\Rightarrow$ **Rent = $AP_L - MP_L$**

② Both AP_L & MP_L are downward sloping with MP_L steeper than AP_L.

③ Profit = capital accumulation by Monopolist.

④ only 2 sectors are considered - Agriculture → (More Prominent) & Industry.



The fall in MP_L is steeper than AP_L $\Rightarrow$ Rent rises with ↑se in Labour force.

→ The reservation wage (W_1) is determined by Social & cultural factors.

→ There is no movement of capital from one sector to another & to ensure this, the share of Labour remains constant in Both the sectors.

Initial Level of employment in the Economy is L_1.

$\Rightarrow$ Rent = $(AP_L - MP_L) \times OL_1$ $\Rightarrow$ **ABC** region represents Rent.

Wage = W_1 $\Rightarrow$ Total wage Bill of Capitalist = $OW_1 \times OL_1$

$\Rightarrow$ **OL_1DE** region represents Wage.

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The region ACDE represents Profit of the ~~Monopoly~~ Capitalist.

Now, with expansion in the economy, the level of employment in the economy rises.

Let us consider a situation when Employment = OL_2.

$\Rightarrow$ Rent = $(AP_L - MP_L) \times OL_2$ = Region BB'C'C

↑ Represents Rent at L_2 level of Employment.

Wage Bill of Capitalist = $OW_1 \times OL_2$ = Region OEC'L_2

Profit of Capitalist = Region CC'D

∴ It can be clearly observed that with expansion of economy, that is with ↑se in the employment level in the economy, the Rent & Wage rises while the Profit reduces, which is counter intuitive.

* CRITICISMS of Ricardian Model :-

(1) Weak Empirical Evidence. Because, Profit rises with expansion of the economy.

(2) Role of technology is not considered, due to which AP_L & MP_L can rise alone which can lead to increase in the Profit.

Q.2 (c) Explain the impact of elasticity of demand and supply curves on stability in Cobweb Model. (20)

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Cobweb Model

Assumptions :- ① Perfect Competition in the Market.

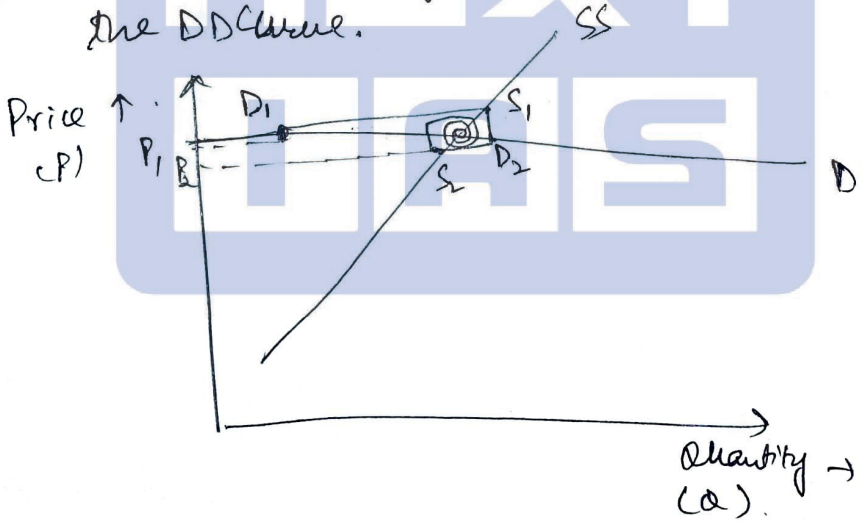
② Supply is based on Price in the current time Period. [Supply → P_t]

③ Demand is based on Price in the Previous time Period. [Demand → P_{t-1}]

④ Equilibrium is dynamic in nature. That is, it takes place over the Period of time.

The Elasticity of Supply & Demand curves affects the stability in the Cobweb Model.

Case 1 :- When Supply Curve (SS) is steeper than the DD Curve.



At Price level P_1, Supply (S_1) < Demand (D_1)

⇒ Excess Supply → Price decreases to P_2.

At Price P_2, Demand (D_2) > Supply (S_2)

⇒ Excess Demand → Price rises to P_3.

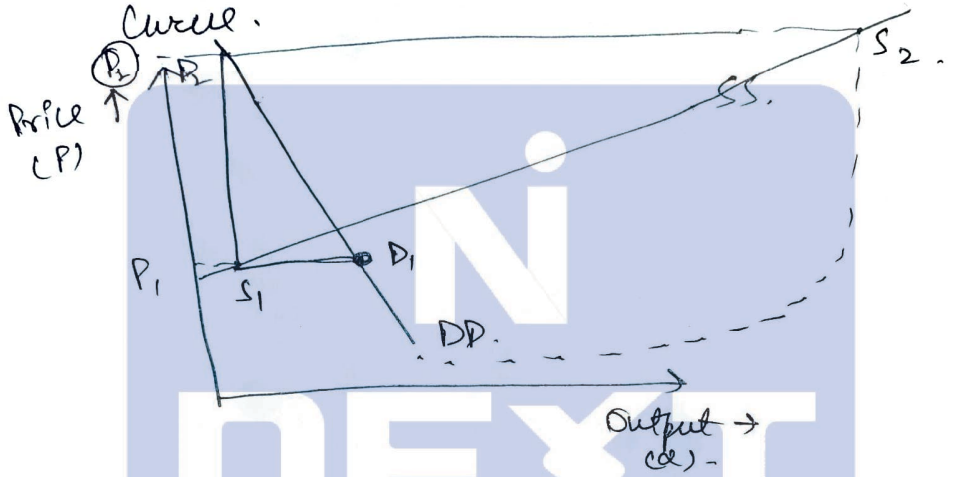
∴ the horizontal & vertical Extent of the Cobweb is ↓ reducing over the Period of time &

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thus, this represents a situation of **Stable** Cob Web.

 → Stable Cob Web (SS steeper than DD).

Case II when DD curve is steeper than SS

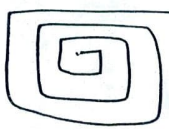


At Price P_1 ⇒ Demand (D_1) > Supply (S_1)

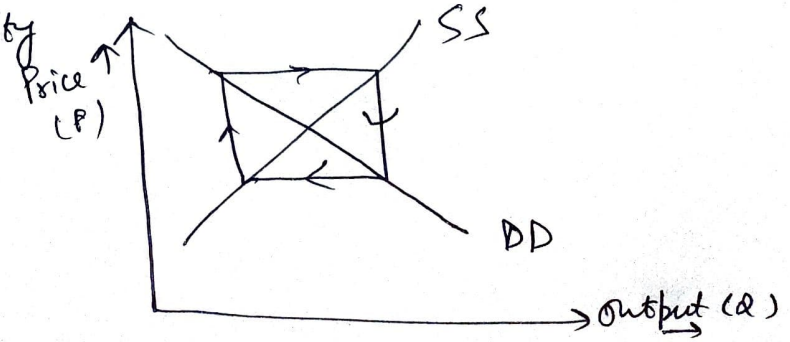
⇒ Price rises to P_2.

At Price, P_2 ⇒ Demand(D_2) < Supply (S_2)

→ Price falls

Clearly, in this case the horizontal & vertical extent of Cob-web is increasing over the Period of time, representing situation of **Unstable** equilibrium.  → Unstable Cobweb

Case III when SS & DD curve have same elasticity



Clearly, when SS curve & DD curve have same elasticity it represents a Neutral cobweb.

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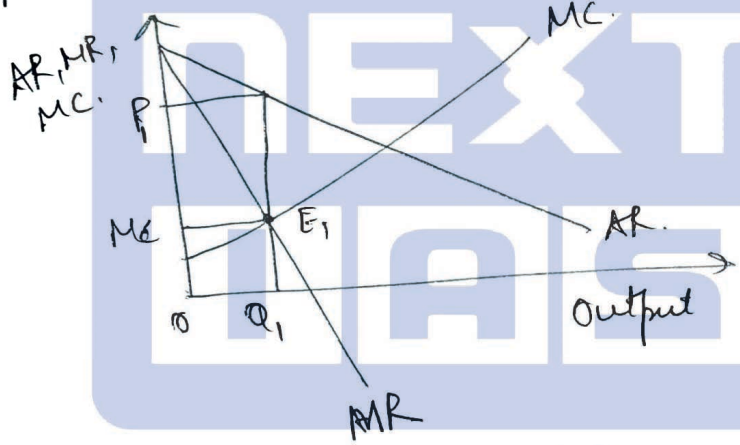
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Q.3 (a) "Prices can be over and above MC only in Monopoly market structure". Analyse the statement. (20)

In case of Monopoly market, the firms (Monopolists) can charge Price over their Marginal cost (MC) to make excessive profits.

In case of Monopoly, demand curve (AR) & MR curve, both are downward sloping with MR curve below the AR curve. Equilibrium takes place, when MR intersects MC (supply curve) & the Price is determined by AR curve at the equilibrium level of output in the economy.



Equilibrium takes place at E_1 where MR intersects MC, equilibrium level of output is Q_1 & Price determined by AR curve is P_1, which is clearly above MC. $[P_1 > MC]$.

However, $P > MC$ is the case which can exists in other market structure as well, such as Monopolistic competition apart from the Monopoly.

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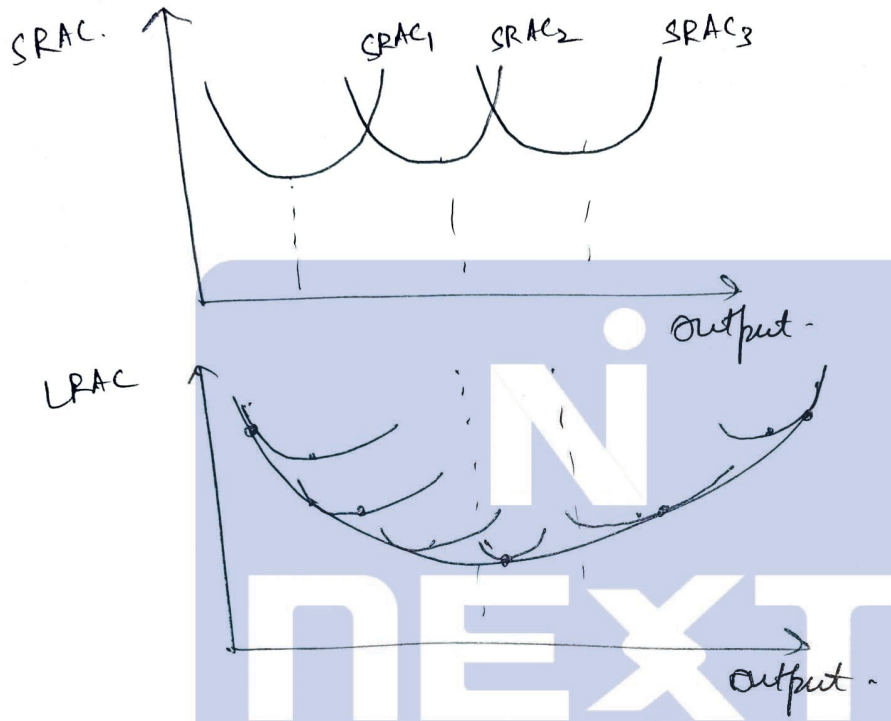
In case of Monopolistic Competition, the firms can charge Price above MC in Short Run, however in Long Run they can charge P=MC only.

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Q.3 (b) Explain the role of returns to scale in determining the shape Long Run Average Cost Curve. (10)

Long Run Average Cost (LRAC) curve is obtained by joining the Points of Minimum of Short Run Average Cost (SRAC) curve.



LRAC curve is U-shaped & it is also known as an envelop curve as it contains all the SRAC curves.

Initially, the Increasing Returns to Scale (IRS) determines the falling part of LRAC. Because, the firms shifts from one Plant to another without completely exhausting it.

At the Minimum of LRAC, there is Constant Returns to Scale (CRS). There is Optimum utilization of the Plant, before getting shifted to another one.

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The rising portion of LRAC represents decreasing returns to scale (D.R.S.). In this situation, the plants are exhausted beyond their optimum level even though the firms had to incure additional costs.

Thus, the Returns to scale plays a key role in the determination of shape of LRAC curve.

Q.3 (c) How did Kalecki utilize Lerner's Index of Monopoly power in his theory of distribution? Examine the conclusions drawn by his theory. (20)

Candidates must not write on this margin

Kalecki's Model :-

Assumptions :-

① Kalecki considered the Entrepreneurs & higher end workers such as CEO, CFO, CTO, worker's working at higher managerial Posts under his definition of Capitalists.

② Considered Lerner's Index as a determinant of Monopoly Power.

$AR_1 = P_1\left(1 - \frac{1}{|e_1|}\right)$; $AR_2 = P_2\left(1 - \frac{1}{|e_2|}\right)$

$\bar{\mu} = \frac{P - MC}{P} \Rightarrow \bar{\mu} = \frac{P - MC}{P} \Rightarrow \mu \cdot P = (P - MC)$

Here, $MC = AC \Rightarrow \mu \cdot P = (P - AC)$ ↳ Per unit Profit of Monopolist.

$\Rightarrow \mu \cdot P \cdot X = (P - AC) \cdot X$ ↳ Total Profit of Monopolist.

$\Rightarrow \sum \mu \cdot P \cdot X \rightarrow$ Profit of all the Monopolist's in the Market

$\sum P \cdot X \rightarrow$ Turnover ~~Profit~~ in the Market

$\Rightarrow \mu = \frac{\sum \mu \cdot P \cdot X}{\sum P \cdot X} = \frac{\sum (P - AC) \cdot X}{\sum P \cdot X}$

Replace, $\sum P \cdot X = T \Rightarrow \boxed{\bar{\mu} = \frac{\sum (P - AC) X}{T}}$ — (1)

Also, Output/Income (Y) = Wage (W) + Profit (P)

$\Rightarrow \bar{\mu} = \frac{P}{T} = \frac{Y - W}{T}$

Candidates must not write on this margin

On solving, $\Rightarrow \boxed{\frac{W}{Y} = \frac{1}{1 + \bar{\mu} \cdot \frac{T}{W}}} \rightarrow -(2)$ (wage share eqn)

Kalecki used the above equation for explaining constant $\left(\frac{W}{Y}\right)$ ratio in 20th century.

According to Kalecki, the product of $\bar{\mu}$ & T remained constant which kept $\left(\frac{W}{Y}\right)$ consistent.

The constant $(\bar{\mu} \cdot T)$ is attributed to the following factors:-

(1) **Before World War** :- $\bar{\mu}$ was high due to restrictions of entry in the market & thus higher monopoly.
T was low due to lower cost of Raw material in agriculture $\Rightarrow \bar{\mu} \cdot T$ = constant.

(2) **After World War** :- $\bar{\mu}$ decreased due to free entry of the firms.
T increased due to higher price of raw materials $\Rightarrow \bar{\mu} \cdot T$ = Constant.

(3) **Business cycle** → **Boom**: $\bar{\mu}$ = Low
T = high (due to higher inflation)
$\Rightarrow \bar{\mu} \cdot T$ = Constant

Recession: $\bar{\mu}$ = High
T = Low (Lower inflation) $\Rightarrow \bar{\mu} \cdot T$ = constant

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Criticisms of Kalecki Model

(1) Did not considered the effect of Trade Union.

(2) Price differential is not only due to Monopoly Power, it can be due to other factors such as efficiency of firms.

(3) Monopoly Power is not dependent only on Lerner's Index (i.e. P > MC). It also depends on Natural Monopoly, IPR Regime, Legal Laws in the Country, etc.

(4) Kalecki's Model does not works in case of developing Nations. [Weak Empirical Evidence]

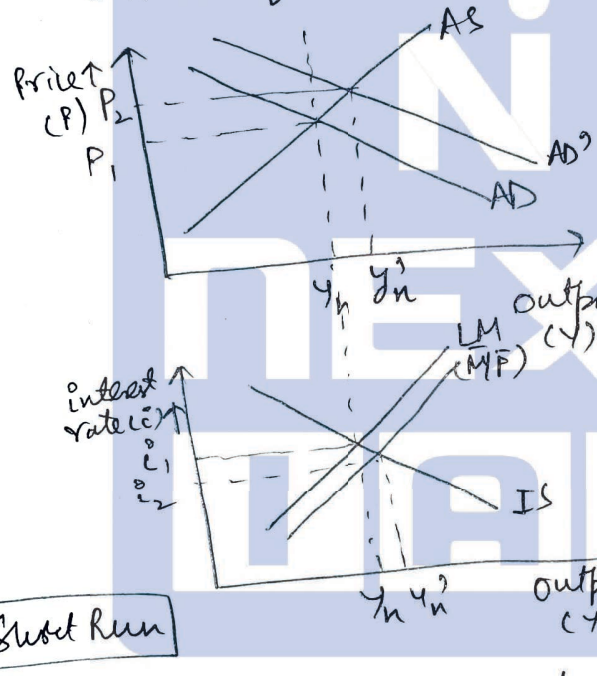
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SECTION-B : MACROECONOMICS

Q.5 (a) "Monetarists and Classicals draw same conclusions in both short run as well as long run." Analyse. **(10)**

Monetarism is also referred to as Neo-classical Model or Friedman Phelps Fooling Model. As the name suggests, the agents can be fooled in a short run through fiscal or Monetary changes.

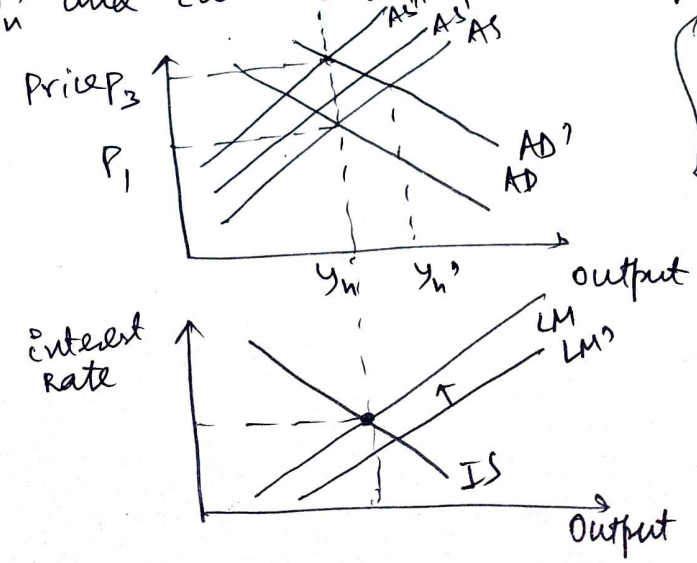
Case of Increase in Money Supply :-
(In Case of Monetarism)



Short Run

In case of an increase in Money Supply (M^{ss}) the AD curve shifts rightwards, and LM curve shifts rightwards & downwards. However, shift in the LM is lesser as Price is also increasing which restricts real Money Supply

∴ In short Run, in case of increase in M^{ss}, Price rises from P_1 to P_2, output rises from y_n to y_n' and interest rate decreases from i_1 to i_2



Long Run

Candidates must not write on this margin

However, in Long Run the workers will revise their expectations based on higher price in the Market. ∴ They will keep shifting the AS curve upwards till AS intersects AD at Y_{real} level of output. Also, LM will shift upwards as the real money ~~Thus~~ supply decreases due to increase in Price. This will continue till IS intersects LM again at Y_n level of output.

Thus, in Long Run Monetary Policy is ineffective.

Clearly, it can be seen that Monetarists gives similar result as that of Classical only in the Long Run. While, in Short run they behaves similar to Keynesian.

Q.5 (b) Define Sacrifice Ratio. What was its utility as stated by Okun ? (10)

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According to ~~Lucas~~ Okun, Sacrifice ratio is defined as the ratio of Excess Point years of unemployment that is when unemployment is above natural rate of unemployment to the decline in inflation. It is equal to $\frac{1}{\alpha}$, where α represents responsiveness.

$$\text{Sacrifice ratio } \left(\frac{1}{\alpha}\right) = \frac{\text{Point years of excess unemployment } (U_t > U_n)}{\text{Decline in Inflation.}}$$

$\pi_t - \pi_{t-1} = -\alpha(U_t - U_n) \rightarrow$ Philips Curve (Dynamic)

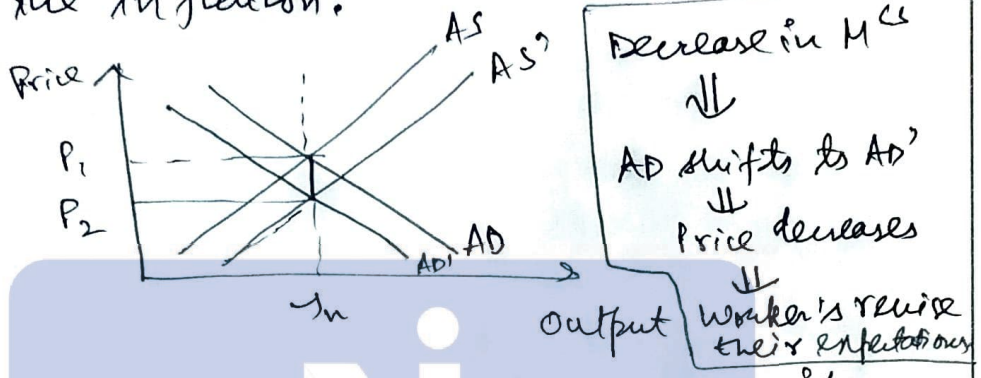
$U_t - U_n = -\beta(g_y - \bar{g}_y) \rightarrow$ Okun's Law.

According to Okun, there is a trade-off between inflation and growth rate of Output. He said that if an economy wants to decrease inflation, then it had to take a cut in its growth rate of Output. He used the Sacrifice ratio to show the same.

However, Economists like Lucas criticised the idea of Sacrifice Ratio citing that if the government can make credible Policies that is those Policies which are consistent & trusted by all, then there will be no trade off between inflation & Output growth rate, because workers will be willing to take a wage cut with decrease in Price level due

Candidates must not write on this margin

to decrease in Money supply by the Central Bank & that will keep the output at Y_n (natural rate of growth of output), meanwhile taming the inflation.



Workers will keep shifting AS curve till it reaches AS' such that output is Y_n.

Q.5 (c) What is the role of low interest sensitivity of investment in determining effectiveness of monetary and fiscal policy? (10)

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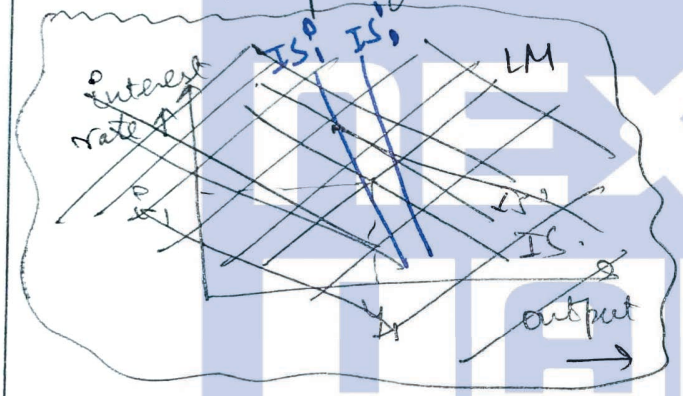
In case of Neo-Keynesian Model, Investment demand has 2 components → Autonomous Investment ($\bar{I}$)
→ Investment as a function of interest rate.

$\Rightarrow \boxed{I = \bar{I} - bi}$; where, b → interest sensitivity of investment demand.

$Y = \alpha_0 (\bar{A} - bi)$

Eq^n of IS curve $\Rightarrow$ $\boxed{i = \frac{\bar{A}}{b} - \frac{Y}{\alpha_0 b}}$

$\Rightarrow$ slope of IS curve $= \frac{1}{\alpha_0 b}$



In case of Neo-Keynesian Model, the steeper IS curve represents more effective fiscal Policy. Because, in case of steeper IS → lesser ↑se in interest rate due to rise in Government Expenditure

⇓

Lesser Crowding out

⇓

More ↑se in output.

$\Rightarrow$ **Lesser b → effective fiscal Policy**

Similarly, higher b → effective Monetary Policy.

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∴ Lower interest sensitivity of Investment demand ensures that the effect of interest rate on Investment is less & hence less effect on output, thus effective fiscal Policy.

And, higher interest sensitivity of Investment demand implies less effective fiscal & more effective Monetary Policy.

NEXT IAS

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Q.5 (d) How does the autonomous multiplier get affected if investment is also a function of income? (10)

Investment is a function of Income (Y).

$\Rightarrow \boxed{I = \bar{I} - bi + \lambda y}$

$\bar{I} \rightarrow$ autonomous Investment
$b \rightarrow$ interest sensitivity of Investment demand.
$i \rightarrow$ interest rate
$\lambda \rightarrow$ output sensitivity of Investment demand.

$C = \bar{C} + cY_d$

$Y_d = Y - tY = (1-t)Y$

$\Rightarrow C = \bar{C} + c(1-t)Y.$

$G = \bar{G}$ $\Rightarrow AD = C + G + I$ (assuming closed economy $\Rightarrow NX = 0$)

$\Rightarrow AD = \bar{C} + c(1-t)Y + \bar{G} + \bar{I} - bi + \lambda y.$

$\Rightarrow AD = \bar{A} - bi + [c(1-t) + \lambda]Y$; where $\boxed{\bar{A} = \bar{C} + \bar{G} + \bar{I}}$

At equilibrium, $Y = AD.$

$\Rightarrow Y = \bar{A} - bi + [c(1-t) + \lambda]Y$

$\Rightarrow Y[1 - c(1-t) - \lambda] = \bar{A} - bi$

$\Rightarrow Y^* = \left(\frac{1}{1 - c(1-t) - \lambda}\right)(\bar{A} - bi)$

$\Rightarrow \frac{\partial Y^*}{\partial \bar{A}} = \frac{1}{1 - c(1-t) - \lambda} = \alpha.$

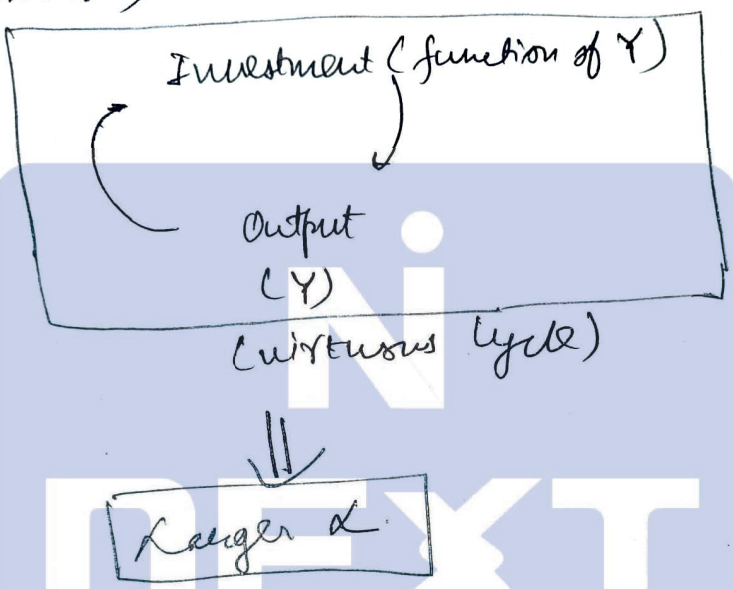
Also, $\alpha_G = \frac{1}{1 - c(1-t)}$

Clearly, $\boxed{\alpha > \alpha_G}$

∴ The autonomous Multiplier will be higher, because in this case Investment is a function of output/Income. Due to

Candidates must not write on this margin

higher Investment, there will be higher output which further increases Investment & thus a vicious cycle of Investment & Output is created leading to a higher value of Autonomous Multiplier (α)



Q.5 (e) Explain Classical Dichotomy. What is its relevance to neutrality of money? (10)

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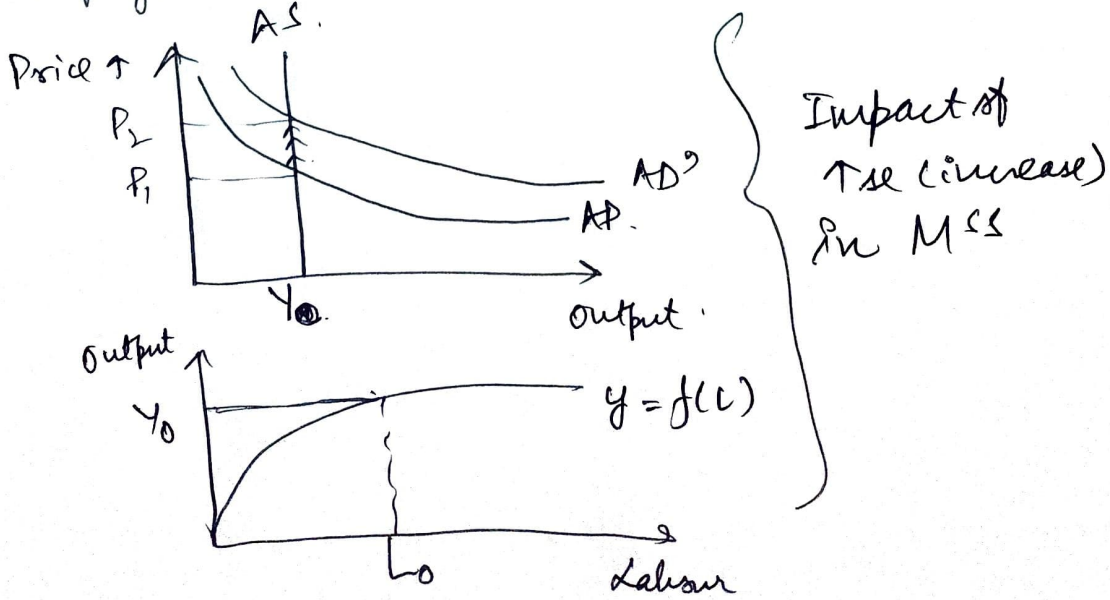
Classical Dichotomy is one of the assumptions of Classical Model.

It implies that the real variables such as Output, Real interest Rate, Employment, etc. can be affected only by the change in real variables such as Machines.

Similar, Nominal variables such as Money Supply can affect Nominal Variables such as Price level in the economy, wage, etc.

Classical Dichotomy asserted that Real variables can never affect nominal variables & vice-versa.

Classical dichotomy can be used to explain the Neutrality of Money, that is, Money Supply as a Policy tool is ineffective both in Short & Long Run. Because, Money being a nominal variable cannot affect Output or Employment which are real variables.



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Due to increase in M^{ss} in the economy there is excess demand in the economy, that is "too ~~few~~ Much Money chasing too few goods". Therefore, Price level rises to P_2 & the entire effect of ↑se in M^{ss} is nullified by ↑se in Price level in the economy. There is no change in AS curve as there is not impact from supply side.

∴ Money is neutral in case of classical Model in Both Short Run & Long Run.

NOTE :- ↑se → increase

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Q.6 (a) Explain the shape of AS curve in long run in Neo- Classical Model. How is it different from Short run AS curve? **(20)**

Neo-Classical Model:

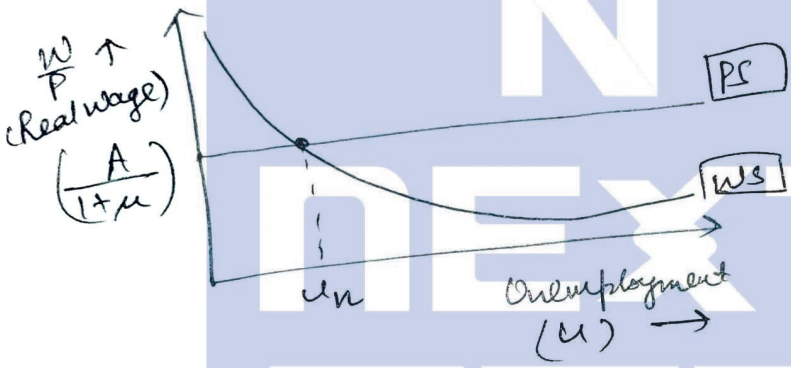
Assumptions:- ① Imperfect Competition.

② Production function : $Y = AL$

A → Technology coefficient

$\Rightarrow MP_L = \frac{dY}{dL} = A$.

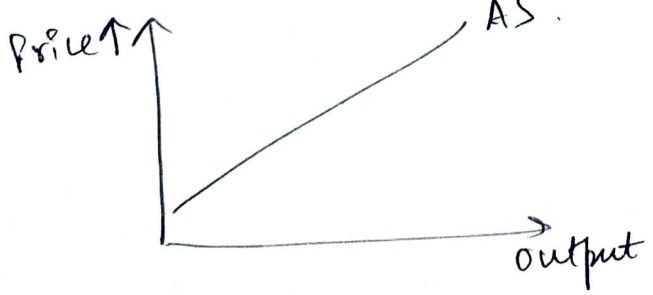
③ wage is determined via bargaining between workers & the firms.



With higher Price, the $\left(\frac{W}{P}\right)$ will increase and unemployment will be below the natural rate of unemployment $\Rightarrow U < U_n$

$\therefore Y > Y_n$

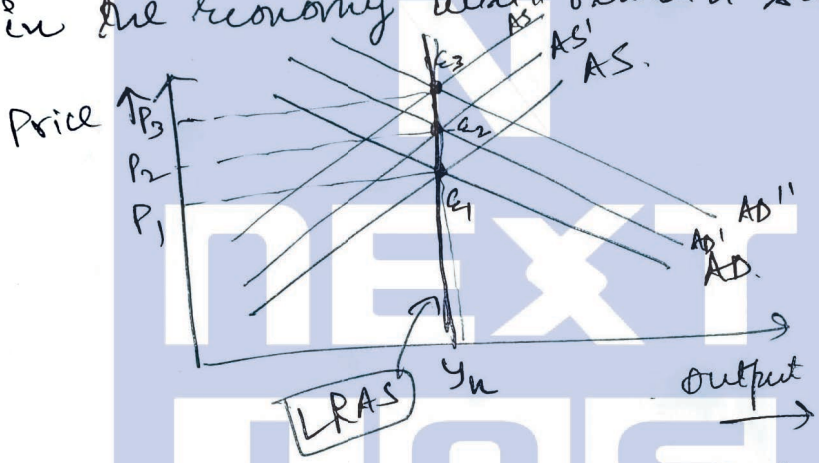
$\Rightarrow$ with rise in Price, output(Y) increase.



$\therefore$ Short Run AS curve is upward sloping, showing a positive relationship between Price & output in case of Neo-classical Model.

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However, the Long Run Aggregate Supply Curve (LRAS) in case of Neo-classical Model is vertical. This is because now the workers cannot be fooled with higher wage rate. They realize that due to higher wage, there will be Price inflation & the real wage ($\frac{W}{P}$) remains same. ∴ They will not be supplying additional Labour hours & the output Produced in the economy will remain same.



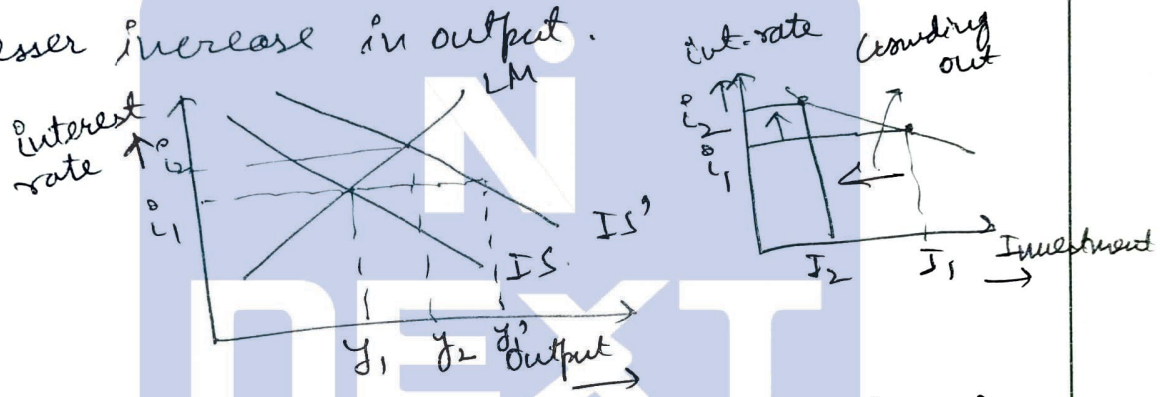
∴ In Short-Run Neo-Classical Model behaves like that of Pure Keynesian & the SRAS curve is similar to that in case of Keynesian [Upward sloping].

while, in Long Run Neo-Classical Model exhibits similar behaviour as that of Eclectic Classical & thus LRAS curve is vertical.

Q.6 (b) Does government borrowing always crowd out private investments? Analyse. (10)

Candidates must not write on this margin

According to Neo-Keynesian (IS-LM) Model, if the government borrowing increases, then it leads to increase in the government expenditure which shifts the IS curve to IS', the interest rate increases from i_1 to i_2 and due to higher interest rate, there is a decrease in Investment which leads to a lesser increase in output.



Increase in output is $y_1 y_2$ instead of $y_1 y_f$.

This decrease in output ($y_2 y_f$) is due to crowding out of Private investment.

However, government borrowing need not always crowd out investment, in fact the following measures could crowd in the Private Investment.

① If the government expenditure is on Capital Creation such as development of Sustainable infrastructure such as roads, railways, Port development, etc. This reduces logistical cost, improves connectivity & overall efficiency in the economy.

② Focussing on simplified tax rules, lenient environmental laws, IPR reforms, Labour reforms, etc.

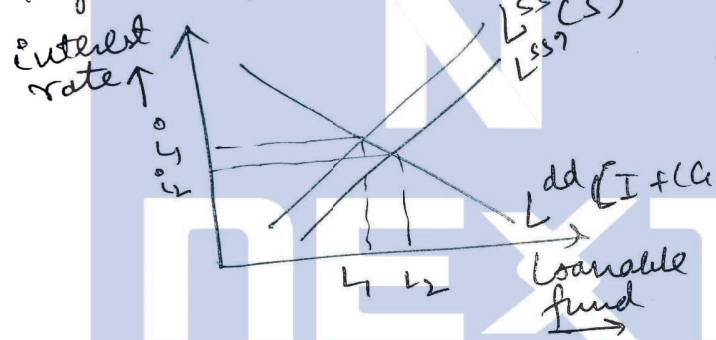
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Thus, certain structural reforms if undertaken will improve ease of doing Business & will crowd in investment despite higher government borrowings.

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Q.6 (c) Examine why classical theory couldn't explain paradox of thrift? What were the different assumptions under Keynes that it could be explained? What was its role in explaining great depression. **(20)**

Classical economists believed that savings is a virtue. Because, with higher level of savings the supply of loanable funds will increase & this will lead to a lower interest rate, due to which firms will find it cheaper to borrow & thus investment in the economy rises leading to higher output & employment.



interest rate reduces from i_1 to i_2.

According to Keynesian Theory, higher savings would lead to lesser consumption & hence reduced Aggregate demand in the economy.

$$Y = C + S$$

(Income) (Consumption) (Savings)

Also, $C = \bar{C} + \underset{\sim}{c}Y$

$\underset{\sim}{c}$ (mpc) → marginal Propensity to consume.

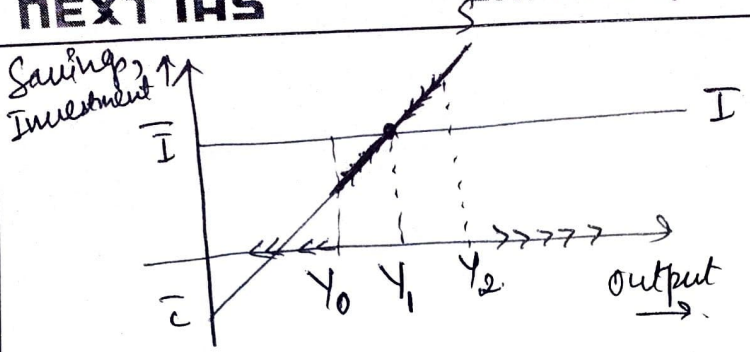
$$\Rightarrow S = Y - C = -\bar{C} + (1-c)Y$$

$$\Rightarrow \boxed{S = -\bar{C} + (1-c)Y} \; ; \; \boxed{I = \bar{I}}$$

At equilibrium, $Y = AD \Rightarrow C + S = C + I$

$$\Rightarrow \boxed{I = S} \rightarrow \text{At equilibrium}$$

Candidates must not write on this margin



At $Y > AD \Rightarrow S > I$ $\Rightarrow$ I has to increase. increases beyond

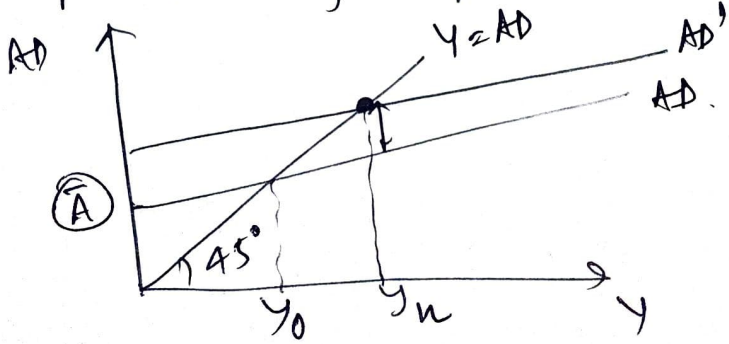
$\therefore$ Output level ~~falls~~ from Y_2 ~~to Y_1~~ and ~~there is a downward movement along savings line.~~

At $Y < AD \Rightarrow S < I \Rightarrow$ I has to decrease

$\therefore$ Output ~~rises from~~ falls below Y_0.

Thus, there is an unstable equilibrium at output level Y_1, where Investment = Savings.

Paradox of Thrift could explain great depression because they asserted the role of Government expenditure. That is, during the great depression, there was a lesser demand in the economy, thus the government needs to intervene via fiscal policy tool by increasing its expenditure such that the Aggregate demand increases and the output increases such that equilibrium output is at full ~~equilibrium~~ employment level.



Candidates must not write on this margin

Initially, $Y_0 < Y_n$ ∴ economy is below its full employment level. The AD is lesser than the expected AD.

∴ with higher Y, AD shifts to AD' such that equilibrium output level is Y_n.

Criticisms of P.O.T.

① It didn't considered the role of higher liquidity in the market due to higher savings.

② firms can shifts their Investment based on their future expectations due to higher Liquidity in the market.