

"FOREX"

Basics

① $\frac{A}{B}$ means 'A' will be given to Buy, 'B'

② 13.4562/70 means,
13.4562 / 13.4570

③ Bid - Acquire ; always Ask > Bid
Offer/Ask - Deliver SP > cost

④ Superiority

Market $\rightarrow$ Bank $\rightarrow$ Customer

⑤ $\frac{Rs}{\$}$ means 1 \$ = ? Rs

⑥ $\frac{INR}{\$}$ = 20-25 means,
1 \$ = INR (20-25)

⑦ SWAP Points / Forward premium/discount

S₁: See the Superior

S₂: If Ascending Order

eg: 6/10

Add to Superior

ie 6+ or 10+

Decending
10/6

Deduct from Superior

6-, 10-

$$1\$ = 10Rs$$

$$\frac{Rs}{\$} = 10$$

means to acquire 1\$, pay 10 Rs

- ⑧ Always Superior will acquire LHS currency, by paying lower RHS currency

Acquire LHS $\xrightarrow{\text{Pay}}$ Lower RHS
 Deliver LHS $\xleftarrow{\text{Receive}}$ Higher RHS

- ⑨ Appreciation or depreciation of currency

eg: 1£ = 15\$

- case a) £ is appreciated by 10%
 b) £ depreciated 10%
 c) \$ appreciated 10%
 d) \$ depreciated 10%

	Case (a)	(b)	(c)	(d)
S1: Which currency is changing	£	£	\$	\$
S2:	£ = 15 + 10%	15 - 10%	$= \frac{15}{(100 + 10)} \times 100$	$\frac{15}{(100 - 10)}$
	16.50	13.50	13.63	16.67
Reason	1£ = 15\$ is directly given, so, directly we can + or -		Convert & then do formula = $\frac{15}{(100 + 10)\%}$ or Concept 1£ = 15\$ 1\$ = 1/15 = 0.067 App by 10% 1\$ = 0.067 + 10% 1\$ = 0.073£ 1£ = 1/0.073 = 13.63	

Cross Currency Rates

eg 1

$$1 \$ = 40 \text{ Rs}$$

$$1 £ = 1.5 \$$$

calculate,

(a) $\frac{\text{Rs}}{£}$

(b) $\frac{£}{\text{Rs}}$

Soln

$$\frac{\text{Rs}}{£} = \frac{\text{Rs}}{?} \times \frac{?}{£}$$

$$= \frac{\text{Rs}}{\cancel{\$}} \times \frac{\cancel{\$}}{£}$$

$$= 40 \times 1.5$$

$$= 60$$

$$\frac{£}{\text{Rs}} = \frac{£}{?} \times \frac{?}{\text{Rs}}$$

$$= \frac{£}{\$} \times \frac{\$}{\text{Rs}}$$

'Not Possible'

So,

$$\frac{£}{\$} \text{ should be } \frac{\$}{£}$$

Reverse it,

$$\Rightarrow \frac{1}{£/\$} \times \frac{1}{\$/\text{Rs}}$$

$$= \frac{1}{40} \times \frac{1}{1.5}$$

$$= \underline{\underline{0.0167}}$$

eq 2:

$$1 \$ = \text{JPY} (120 - 124)$$

$$1 \text{ P} = \$ (2 - 2.5)$$

$$1 \text{ £} = \text{P} (0.4 - 0.5)$$

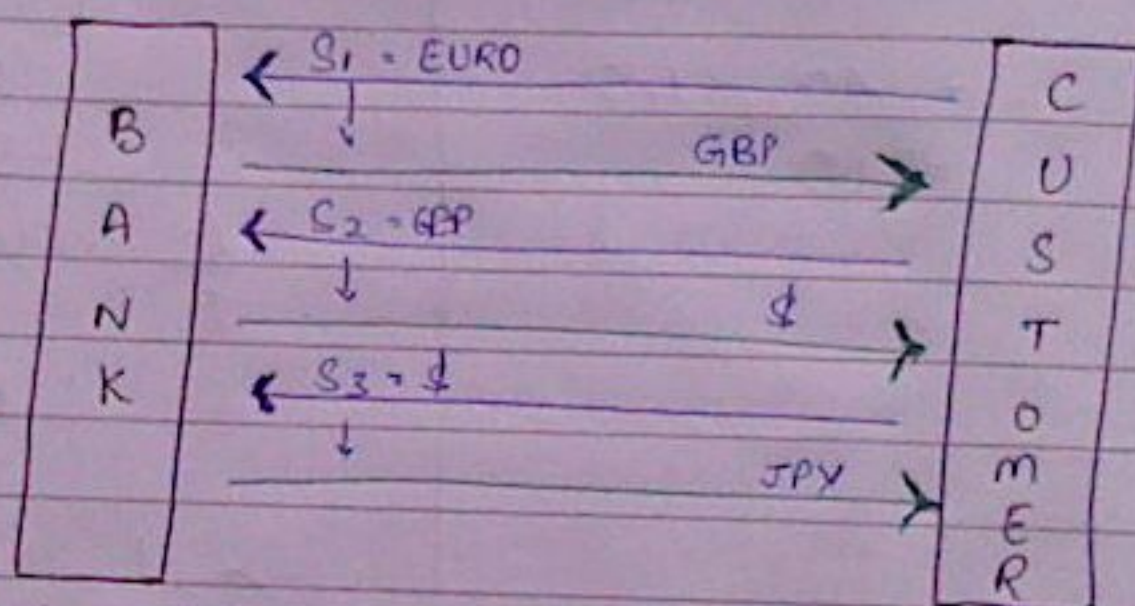
Calculate,

$$\frac{\text{JPY}}{\text{£}}$$

Soln

$$\frac{\text{JPY}}{\text{£}} = \frac{\text{JPY}}{?} \times \frac{?}{\text{£}} \times \frac{?}{?}$$

$$= \frac{\text{JPY}}{\$} \times \frac{\$}{\text{P}} \times \frac{\text{P}}{\text{£}}$$



How to solve, i.e. which route to go?

① See what we want i.e. JPY i.e. we want $\frac{\text{JPY}}{\text{£}}$

② If we want JPY, we must be having '£'.
Hence Sell that to Bank first & receive what is there

③ Note: Always, Start with "What we Have"
End with "What we Want"

Calculation of Forward premium / Discount

Rate at Spot $\neq$ Rate in Forward

The difference is Fwd premium / Discount

eg $\$ = 47.6825 - 47.6845$

2 months Swap points = 30/35 Case (a)
35/30 Case (b)

Sol ⁿ	Case (a)	Case (b)
	Swap points = 30/35	35/30
	ie Increasing ie Premium	ie Decreasing ie Traded at Disc
	Bank	Bank
	Buy 47.6825 + 0.0030 = 47.6855 ! ie Add Low + Low Sell 47.6845 + 0.0035 = 47.6880 ! ie Add High + High	Buy $\Rightarrow 47.6825 - 0.0035$ = 47.6790 ! ie Deduct Low + High Sell $\Rightarrow 47.6845 - 0.0030$ = 47.6815 ! Deduct High + Low

Calculation of Swap points / fwd premium in (%)

Case (a)

$$= \frac{F - S}{S} \times \frac{360 \text{ or } 12}{n} \times 100$$

Stable
currency

$$= \frac{S - F}{F} \times \frac{360 \text{ or } 12}{n} \times 100$$

changing
currency

Here,

F = Forward Rate

S = Spot Rate

** Here Spot rate is the currency which is taken as base to see whether the currency is stable or fluctuating.

eg: 1 \$ = 20

1 \$ = 30

Here \$ is stable.

n = period of contract.

Early Execution of Forward Contract What Happens Here?

- 1 Bank & Customer would have made a agreement either to buy/sell securities at a fwd date.
- 2 Due to Urgency, Customer needs money.
- 3 He goes for the Bank & asks for money.
- 4 But, w.k.t. A contract cannot be cancelled so easily.
- 5 Hence, the Original contract stays &
- 6 & Contracts are made initially b/w
Customer & Bank & Both on same date
Bank & Market }
क्योंकि Bank को customer का पैसा वापस देना है
तो पैसों के लिए Market से FWD Contract करेगी

Contract 1: | 4 months |
Customer &
Bank (01/01/2012)

Contract 2: | 4 months |
Bank &
Market (01/01/2012)

Always Contract amount of $C_2 > C_1$
 $\therefore C_2$ is S.P for Bank, C_1 is cost
 ie $SP > cost$

7. Termination happens in the 2nd Month
8. Customer is asking Money,
"पैसे दो, Dollar दो"

9. This Pj of Customer has led to the following,

a) Banker has to buy new units from the market on 2nd month since the fire is lit on the gas (ie. to pay immediately). He can't go for forward price. He has to buy such units on spot rate. Customer has to pay for this ie. Loss suffered by Bank on account of New Contract

$$\text{Loss} = \text{Units} \times \text{S.P. at Spot rate on Contract date} \times \text{Pure Price at Spot rate on Kireek date}$$

(b) Interest charges

This is the amount charged by bank, coz of loss incurred on early execution. Same as Pre-Mature deposit

$$= \text{Units} \times \text{Rate} \times \text{Default Period} \times \left[\text{Agreed Rate} - \text{Spot rate on Kireek date} \right]$$

(9) Handling Charges
Assumed to be 100

(10) Step (9) is the amount of Loss that can be recovered by Bank from Customer.

(11) Calculate amount payable to Customer
ie Units $\times$ Agreed price (ie Fwd rate)

(12) Difference is amt payable to Customer
 $S_{12} = S_{11} - S_{10}$

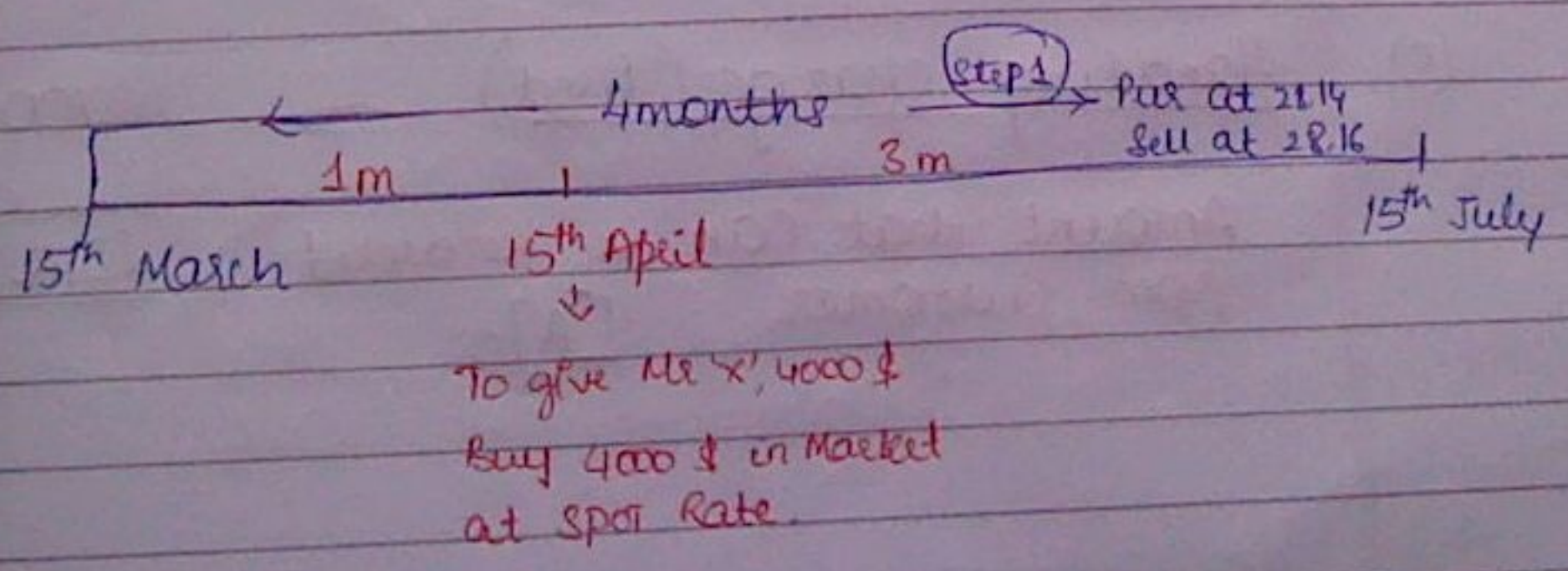
Prob

15 th March	Deliver on 15 th July
$\times$ £ Bank (For 4000\$)	@ 28.14
Bank & Market	@ 28.16

15th Apr - - ask for 4000\$

Bank Rate on 15th April

Spot Rate = 1\$ = 28.1025 / 1075
 July Spot = 28.6475 / 6550
 Rate of Interest = 18%



Calculation of Amount (Profit/Loss) account of Early Execution

(a) SWAP difference

$$4000 \text{ units} \times \text{Price difference} \\ = 4000 [28.6550 - 28.1025]$$

2210

ie coz,

28.6550 is the selling price.

Line Contract Ended in Apr

itself, the Bank has to

sell units in July at SPOT price [at Higher rate,

coz Bank is Superior]

28.1025 is purchase price

ie On the date of ^{immd} payment

Bank here bought the \$ to repay customer.

W.K.T Bank Buys at Lower Rate.

(b) Interest

$$(28.14 - 28.1025) 4000 \times \frac{3}{12} \times 18\%$$

6.75

(c) Handling charges (Fixed)

100

Amount that can be Recovered from Customer

[A]

2316.75

Amount payable to Customer [B] 112,560
(4000 units $\times$ 28.14)

Net Amount payable to the 110,243.25
Customer [B - A]

Cancellation on due Date

- ① Same as in previous case
- ② Since it was cancelled on same date ie due date. No question of Interest
- ③ Consider only the spot rate, other rates are irrelevant
- ④ If the additional transaction is

Purchase of currency by
Bank from Market

Sell

↓
Add Exchange Margin

↓
Deduct

- ⑤ If exchange margin is taken, ignore Handling cost.

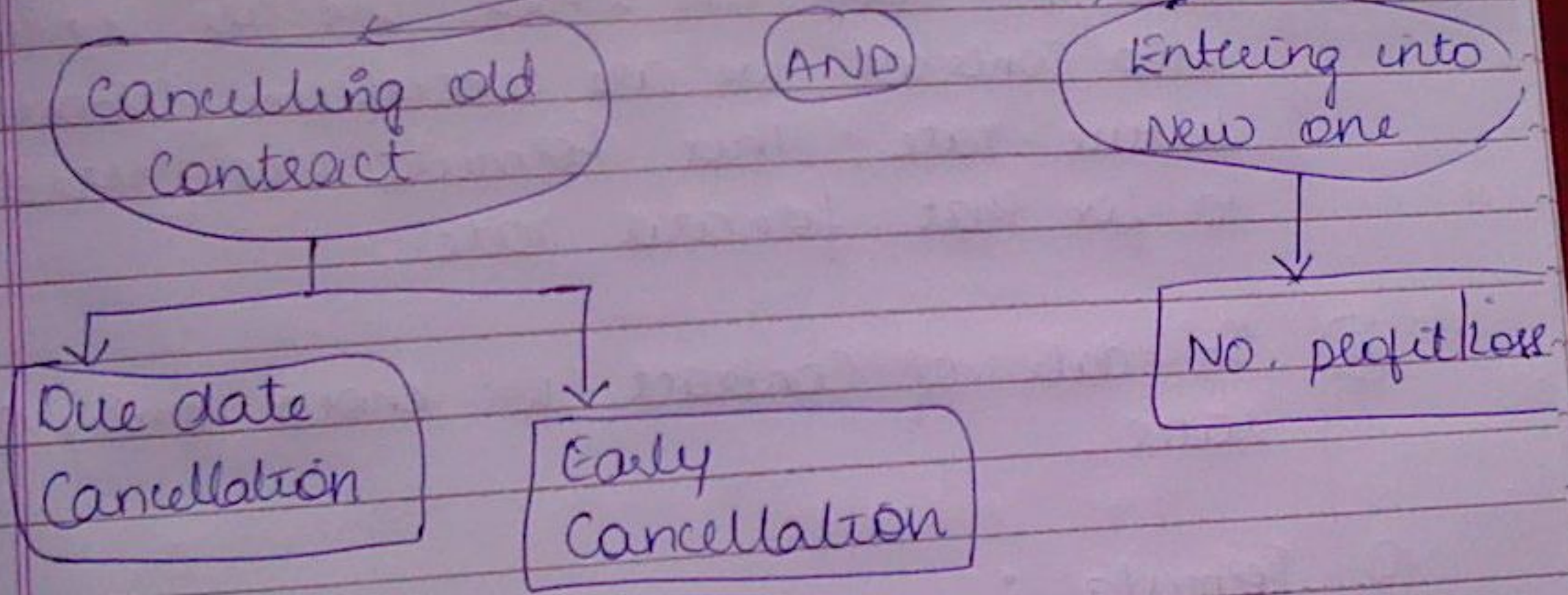
Early Cancellation ie before due date

- ① In due date Cancellation, additional transaction is spot transaction b/w Bank & Market
Here,
it is Forward transaction b/w Bank & Market
ie fm Cancelled Date to due Date
- ② No Interest

Extension of forward contract

① As per RBI, Forward Contract cannot be extended.

② Hence, Extension can be by



Interest Rate Parity Theorem [IRPT]

- ① Motto : Not to calculate Interest, but to find out the forward rate.
- ② ~~State~~ The date on which we are entering into contract, we are uncertain about future rate. This Formula is used to fix that forward rate.
- ③ On date of Contract, we know only spot rates.

④ Formula :

$$\frac{1 + R_A}{1 + R_B} = \frac{F_{A/B}}{S_{A/B}}$$

R_A = AMOUNT of Interest of Currency "A"

R_B = AMOUNT of "B"

$F_{A/B}$ = Forward rate of currency "A/B"
ie of currency "B"

$S_{A/B}$ = Spot rate of currency "B"

How to Remember:

$\frac{\text{Interest of mine}}{\text{Interest of others}}$

$$= \frac{F_{\text{mine}}}{S_{\text{mine}}}$$

we are calculating this figure

Interest of \$ = 18%
 of Re = 12%
 Spot rate of Re = 100
 Forward = ?

6 month Fwd
 1000 units

Chakma (wrong)

Correct way

$$= \frac{1 + (0.12 \times 6/12)}{1 + (0.18 \times 6/12)} = \frac{F}{100}$$

$$= \frac{1 + (1000 \times 0.12 \times 4/12)}{1 + (1000 \times 0.18 \times 4/12)} = \frac{F}{100}$$

ie to say, take the interest amount,
 Not the 'interest rate'

Note: There may be some figures missing
 in question like, Spot rate / Period of Contr.

If 2 or more variables are unknown, we
 cant create a simultaneous equation.
 Hence to find Spot rate / period, use
 Fwd premium disc formula,

$$\text{ie } F = \frac{S}{1 + \frac{360 \times 12 \times 100}{m}}$$

INTERPRETATION OF IRPT

SPOT Rate	= 1 \$ = 40 Rs
Interest Rate	= 1 \$ = 6%
Forward period	= 12% 6 months

When Market price > calculated price as per IRPT

Step 1 Calculate FNR using formula ie 41.16

2 FNR in Market = 50

3 Since Market Value > Calculated - "SELL"
ie Make a fwd Contract to Sell \$, assume 10000\$
we get (10000 x 50 = 5,00,000 (after 6 months)

4 Planning:

To Sell 10000\$ after 6 months, we need funds ie \$, ~~therefore~~ Hence buy \$ now in spot market, such a way that, the Amount (Invested + Interest) = 10,000\$ after 6 months

ie Buy 'x' \$ ^{now} after 6m → Ret 10000\$
Borrow for that Sell in Market

$F = P(1 + r)$ (Simple Interest formula)

$$10000 = P(1 + 12\% \times 6/12) \Rightarrow 10000 = P(1.06)$$

$P = 9708.73$ ie Buy 9708.73 in SPOT

5 Borrowing cost = $9708.73 \times 40 = 388320$

6 After 6 months:
Sale value (10000 x 50) = 500,000
Less: Borrowing cost Repayment incl Interest (411,619)
 $(388320 + (388320 \times 12\% \times 6/12))$ Profit = 88381

FORMULA & ITS METHADOLGY

S1 FNR = 41.16

S2 FNR (Market) = 35

S3 Market < calculated ; "BUY"
10000\$ at 35 = 350000

S4 Planning

→ To Buy 10000\$ in forward Market,
Buy \$ now in SPOT Market
ie $(10000/1.03) = 9708.73$

→ Sell 9708\$ in Indian SPOT Mkt. so as to invest the proceedings in 6 months Deposit.
ie $9708 \times 40 = 388320$

S5 After 6 months:

Amount we Receive (Pmt + Int) 411,619
 $[388320 + (388320 \times 12\% \times 6/12)]$

Less:

Bought 10000\$ at 35 in Mkt (350,000)

Profit

61,619

Conclusions

<u>When</u>	<u>Action</u>	<u>Reaction</u>	<u>Market Rate</u>
$MP > Cal^n$	Sell	More Supply	Reduces until it ^{reaches} IRPT
$MP < Cal^n$	Buy	More Demand	Increases to reach IRPT

Logic

- Demand & Supply are inversely proportional
- As demand increases, price increases.
- ∴ when $MP < Cal^n$; ↑ Demand & ↑ Market rate in future

When demand = supply; $\Rightarrow$ IRPT

→ In Long Run, Market price will move or Less than equal to IRPT

→ $\text{Fwd premium/discount} = RA - RB$
ie Interest Rate differential

→ Higher the premium; Lower will be the Interest Rate

or

If the rate of interest of a currency is lower than the other, it is said to be traded at premium.

eg: INR interest rate = 10%
\$ ————— = 7%

Soln

\$ is trading at premium.
 $\text{Premium} = (10 - 7)\% = 3\%$
ie @3%