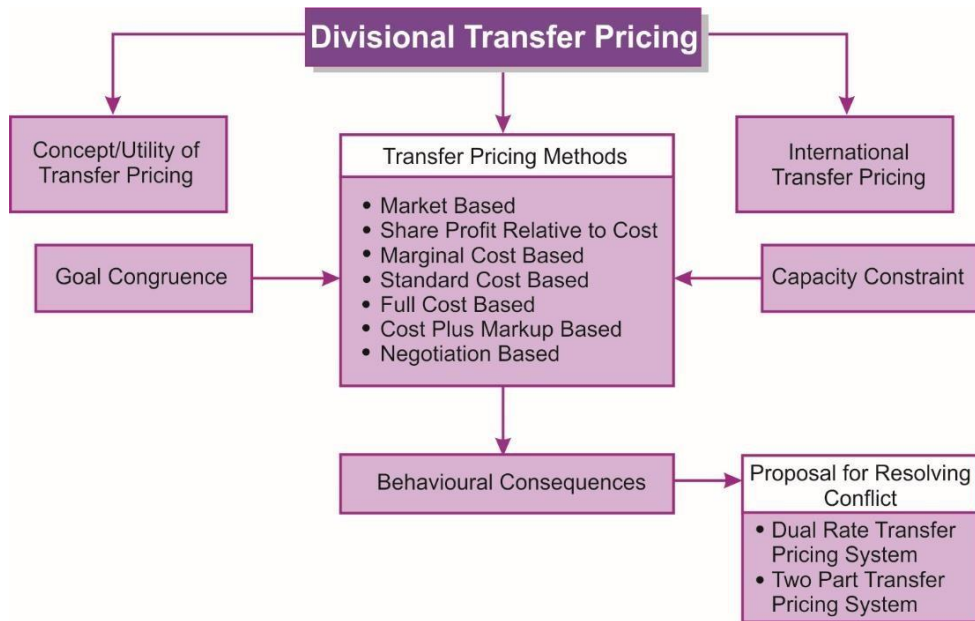CHAPTER **9**

DIVISIONAL TRANSFER PRICING

CHAPTER OVERVIEW

Different Demand Levels

- A supplying division caters to demand from (i) internal divisions (ii) external markets, if any and (iii) any special orders.

- Production is subject to available capacity.

- Production cost benefits from economies of scale.

- For example, a machinery may be capable of processing 10,000 units.

- However, production beyond this level may require purchase of another machine requiring additional space.

- This **increases the fixed cost** incurred by department.

- Hence, production cost is dependent on economies to scale.

Certain types of demand may result in cost savings. For example, internal sales require lower packaging costs since the product may be transferred in bulk to the purchasing division. Likewise, special orders may not require selling expenses since typically it is the customer who approaches the seller in these cases and not the other way around.

Therefore, while catering to different levels of demand, any *change in cost should also be accounted* for to calculate transfer pricing.

The general rule for minimum and maximum range of transfer price applies here too.

Example

A company has two divisions A and B, making products A and B respectively. **One unit of A is an input for each unit of B**. B has a production capacity of 45,000 units and ready market.

Other information available regarding Division A are:

Capacity (production units)	50,000
Maximum External Sales	30,000
Fixed Cost upto 30,000 units. Beyond 30,000 units- It increases by 50,000 for every additional 10,000 units	430,000
Variable Manufacturing Cost p.u.	55
Variable Selling Cost p.u. (external sales)	10
Variable Selling Cost p.u. (special order/ transfer to B)	5
Selling Price p.u. (external market)	80
Selling Price (special sales)	70

B can buy the input A from outside at a slightly incomplete stage at `45 p.u. and will incur subcontracting charges of `30 p.u. to match it to the stage at which it receives goods from Division A. Division B is willing to pay a maximum of `75 p.u. if Division A supplies its entire demand of 45,000 units. If Division A supplies lesser quantity, Division B is willing to pay only `70 p.u.

Division A has also received a special order for 15,000 units which it needs to either accept in full or reject.

Division A may choose to avoid variable selling cost of `5 p.u. on transfer to B or special order, by incurring a fixed overhead of `50,000 p.a. instead.

(i)   What is the best strategy for Division A? Show the profitability of that option.

(ii) What will the range of transfer price be under if the best strategy is chosen?
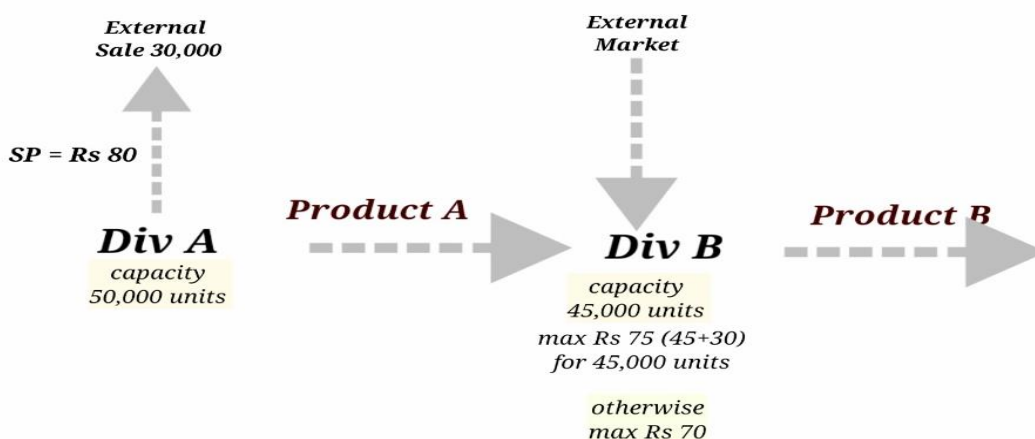
Solution

(i) *What is the best strategy for Division A?*

With a production capacity of 50,000 units,

Division A has to find an optimum mix of sales between external sales, internal transfer to Division B and special order.

Division B requires 45,000 units.

Division A can supply the entire 45,000 units to Division B for which transfer price is `75 p.u. or can supply lower quantity for which transfer price is `70 p.u.

As production increases, certain cost components would also change. Changes to cost of production and selling expenses are discussed below.

1) Selling expenses: It is given that for special orders or internal transfers, Division A can either bear a variable selling cost of `5 p.u. or choose to incur a fixed cost of `50,000 p.a.

   Working out the indifference point, the selling cost will be the same at 10,000 units

   (at what point will No. of units × `5 = `50,000; No. of units = 10,000).

   For any transfer or sale below 10,000 units, it makes sense to bear the variable cost of `5 p.u. Over 10,000 units it makes sense to bear the fixed cost of `50,000.

   Even If Division A chooses to cater entirely to external sales of 30,000 units, the balance 20,000 units will be used to cater to either the special order or as internal transfer to Division B or can even be both (special order 15,000 units and internal transfer 5,000 units). Since in any case sale will be more than 10,000 units, Division A can opt to bear the fixed cost of `50,000.

2) Since A is working at full capacity i.e. 30,000 units are produced. Fixed cost is `430,000 that would increase by `50,000 for every extra 10,000 units produced over 30,000 units. Hence total fixed cost will be 530,000.

To arrive at the optimum mix, Division A will calculate the contribution received per unit under the various options.

Statement of Contribution *per unit*

Particulars		External Sale Upto 30,000 units	Special Order 15,000 units	Transfer to B < 45,000 units	Transfer to B 45,000 units
Selling Price	…(a)	80	70	70	75
Less: Variable Cost	…(b)				
(i) Manufacturing		55	55	55	55
(ii) Selling & Dist.		10	0	0	0
Contribution	…(a) – (b)	15	15	15	20

Hence, transfer to division B of 45,000 units yields the highest contribution. This leaves a balance capacity of 5,000 units with Division A, whose maximum capacity is given to be 50,000 units. This is insufficient to meet the special order of 15,000 units .

Hence, Division A will utilize the balance 5,000 units to cater to external sales. Therefore, the optimum production mix would be:

Transfer to Division B 45,000 units and external sales 5,000 units.

Profitability Statement of Division A

Particulars	Figures in `
Contribution from	
(a) Transfer to Division B (45,000 units × `20)	9,00,000
(b) External Sales (net of selling expense) (5,000 units × `15)	75,000
Total Contribution from Sales …(i)	9,75,000
Manufacturing Fixed Cost	5,30,000
Selling Fixed Cost	50,000
Total Fixed Costs …(ii)	5,80,000
Profit Earned …(i) – (ii)	3,95,000

(ii) Range of transfer price under the best strategy.

As explained above, best strategy for Division A would be to sell 45,000 units to Division B and 5,000 units externally.

Minimum Transfer Price

> **= Marginal Cost per unit + Additional Outlay per unit + Opportunity Cost per unit**

As discussed above, additional outlay would be the fixed selling cost of `50,000 that it chooses to incur rather than incur a variable cost of `5 p.u. Spread over 45,000 units, the per unit cost would be `1.11.

Had Division A not sold 45,000 units to Division B, it would chosen from any of the other options viz. selling 30,000 units externally, meeting special order of 15,000 units **or** transfer of less than 45,000 units to Division B. These may not have been the best strategy for Division A, but would have yielded at least `15 contribution p.u. This is the opportunity cost for Division A for choosing the best strategy.

Therefore, Minimum Transfer Price that Division A will Demand

= `55 + `1.11 + `15

= `71.11.

Maximum Transfer Price Division B is willing to pay (given) = `75

This would be range in which Transfer Price will be negotiated.

PROPOSALS FOR RESOLVING TRANSFER PRICING CONFLICT

Conflict of interest between interests of individual divisions and the company can also be addressed by following systems for transfer pricing:

Dual Rate Transfer Pricing System

The supplying division records **transfer price by including a normal profit margin** thereby showing reasonable revenue.

The purchasing division records **transfer price at marginal cost** thereby recording purchases at minimum cost.

This allows for better evaluation of each division's performance.

It also improves

- co-operation between divisions,

- promoting goal congruence

- and reduction of sub-optimization of resources.

Drawbacks of Dual Pricing include:

(i)   It can complicate the records, thereby may result in errors in company's overall records.

(ii)   *Profits shown by the divisions are artificial* and need to be used only for internal evaluations.

Two Part Transfer Pricing System

This pricing system is again aimed at resolving problems related to distortions caused by

- full cost based transfer price.

Here, *transfer price = marginal cost of production + a lump-sum charge (two part to pricing).*

- While *marginal cost ensures recovery of additional cost of production* related to goods transferred,

- *lump-sum charge enables the recovery of some portion of the fixed cost* of supplying division.

- Therefore, while supplying division can show better profitability, the purchasing division can purchase the goods a lower rate compared to the market price.

Case Scenario (NOV 2017 suggested; Dual Rate & Two Part Transfer Pricing)

Global Multinational Ltd. (GML) has two Divisions 'Dx' and 'Dz' with full profit responsibility. The Division 'Dx' produces Component 'X' which it sells to 'outside' customers only. The Division 'Dz' produces a product called the 'Z' which incorporates Component 'X' in its design. 'Dz' Division is currently purchasing required units of Component 'X' per year from an outside supplier at market price.

New CEO for Indian Operations has explored that 'Dx' Division has enough capacity to meet entire requirements of Division 'Dz' and accordingly he requires internal transfer between the divisions at marginal cost from the overall company's perspective.

Manager of Division 'Dx' claims that transfer at marginal cost are unsuitable for performance evaluation since they don't provide an incentive to the division to transfer goods internally. He stressed that transfer price should be 'Cost plus a Mark-Up'.

New CEO worries that transfer price suggested by the manager of Division 'Dx' will not induce managers of both Divisions to make optimum decisions.

Required

DISCUSS transfer pricing methods to overcome performance evaluation conflicts.
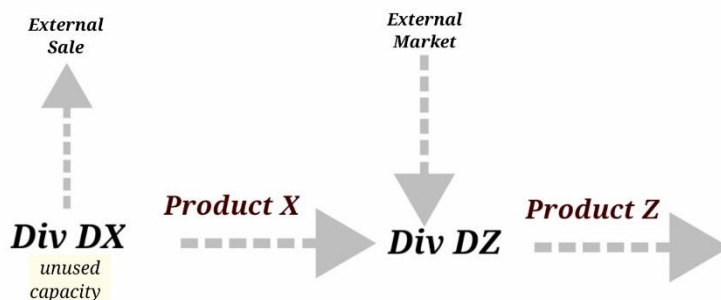
Solution

To overcome the **optimum decision making** and **performance evaluation conflicts** that can occur with **marginal cost-based transfer pricing** following methods has been proposed:

Dual Rate Transfer Pricing System

"With a 'Dual Rate Transfer Pricing System' the 'Receiving Division' is charged with marginal cost of the intermediate product and 'Supplying Division' is credited with full cost per unit plus a profit margin".

Accordingly Division 'Dx' should be allowed to record the transactions at *full cost per unit* plus *a profit margin*. On the other hand Division 'Dz' may be charged only *marginal cost*. Any inter divisional profits can be eliminated by accounting adjustment.

Impact:

−   Division 'Dx' will earn a profit on inter-division transfers.

−   Division 'Dz' can chose the output level at which the marginal cost of the component 'X' is

equal to the net marginal revenue of the product 'Z'.

Two Part Transfer Pricing System

"The 'Two Part Transfer Pricing System' involves transfers being made at the marginal cost per unit of output of the 'Supplying Division' plus a lump-sum fixed fee charged by the 'Supplying Division' to the 'Receiving Division' for the use of the capacity allocated to the intermediate product."

Accordingly Division 'Dx' can transfer its products to Division 'Dz' at *marginal cost per unit* and *a lump-sum fixed fee*.

Impact:

−   'Two Part Transfer Pricing System' will inspire the Division 'Dz' to choose the optimal output level.

This pricing system also enable the Division 'Dx' to obtain a profit on inter-division transfer.

INTERNATIONAL TRANSFER PRICING

- Dynamic business models enable business to spread their business across countries.

- In the recent decades, with the acceptance of a globalized environment, benefits of such business models are being enjoyed across countries.

- Business have benefitted from a multi-national business model. For multinationals considerations for such business models are driven by many factors:

- Demand for its final products

- Availability of raw materials in a specific country. To source such inputs, multi-national companies can have business set-up in the foreign country. Example DeBeers Group that sources diamonds from across the world or from India the Tata Group of companies.

- Availability of low-cost labor with specialized skills. India has been one of the major beneficiaries of this outsourcing model.

It can be concluded that transactions between divisions of these multi-national companies could involve transfer of goods, provision of services or even for intangibles for use of parents, copyrights, brands in the form of royalty payments.

As explained in the beginning of the chapter, from a taxation perspective, transfer price is analyzed as to whether it is at an "arms-length" price. However, what is "arms-length" is a subjective question.

A recent case in point is the ruling on Starbucks UK subsidiary by the British authorities: Known for their world famous coffee, that generate high margins for the company. Although management claimed that business was good, the tax records reported losses.

Investigations revealed that the UK subsidiary paid its Netherlands unit 6% of sales as royalty for intellectual property such as its brand and business processes.

This agreement "6% of sale" is the transfer price between the units.

The question tax authorities raised was whether this was at arms-length, is it comparable with market terms for similar transactions.

In India such tax avoidance measures are being regulated by the government with the introduction of Section 92A to 92F in the Income Tax Act, 1961. This concept is covered in further detail in your taxation syllabus.

Question: (International Transfer Pricing)

A car manufacturing company has two manufacturing divisions in different countries.

Division A in India manufactures engines for the cars. It has a capacity to manufacture 10,000 units each year. The variable cost of production is `8,000 p.u. and the division can sell 8,000 engines externally to customers within India at `11,000 p.u.

Other division, Division B is in Italy that requires 5,000 engines every year to assemble them further into cars.

It purchases these engines from a vendor in Italy at a price that is equivalent to `9,000 p.u.

If Division B were to purchase these units from Division A, transfer price would be `10,000 p.u.

Since no selling expenses need to be incurred on internal sales, variable cost of such transfers would be `7,000 p.u.

If Division A accepts the internal order from Division B, it will have to curtail some of its external sales.

Given that the tax rate is 30% in India and 40% in Italy.

Determine if company will benefit overall if Division B purchases from Division A.
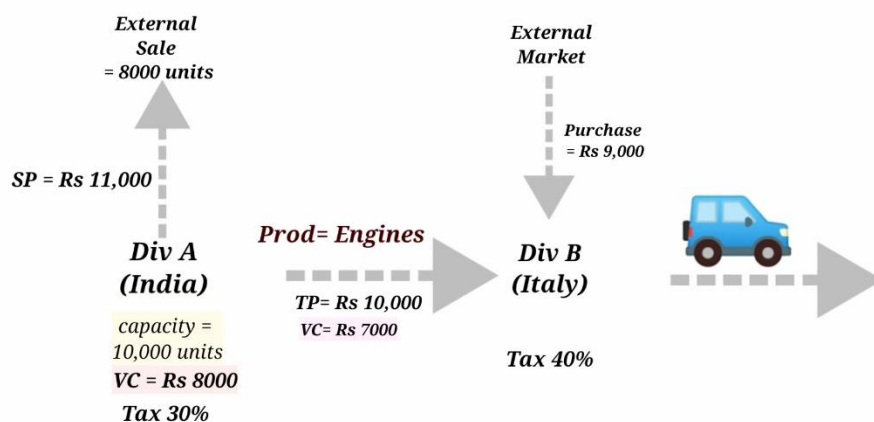
Solution

Problem Definition: If Division B buys from Division A, will it benefit the company as a whole?

Part 1: Benefit to Division A

Currently external sales are 8,000 units.

If Division A accepts to cater to Division B's requirements, external sales have to be curtailed by 3,000 units. Sales mix would be external sales 5,000 units and internal transfer 5,000 units. (refer working note 1).

Division A was previous producing 8,000 units.

On accepting Division B's order, an additional 2,000 units are being produced.

contribution from each option is the same at `3,000 p.u.

Additional Contribution

= 2,000 units × `3,000 p.u.

= `6,000,000.

(For remaining 2000 units no matter you transfer internal or external contribution per unit are same)

Division A pays tax in India at 30%. Hence the Net

Tax Contribution

= `6,000,000 × (100% - 30%)

= `4,200,000.

Part 2: Net Additional Cost to Division B

Division B is currently purchasing the engine within Italy at `9,000 p.u. (` equivalent value).

If it purchases from Division A, it will pay `10,000 p.u.

Additional Purchase Cost

= 5,000 units × (`10,000 - `9,000)

= `5,000,000.

However, this extra cost is tax deductible at a rate of 40%, the tax rate in Italy. Hence Additional Cost (net of tax)

= `5,000,000 × (100% - 40%)

= `3,000,000.

Part 3: Overall benefit (after tax) to the company

As explained above, Division A benefits by `4,200,000 while Division B incurs an extra cost of `3,000,000. Hence, the net after tax benefit to the company is `1,200,000.

Therefore, Division B should purchase engines internally from Division A. *Working*

Notes

1. Statement of Capacity Utilization of Division A

Sr. No.	Particulars	Number of units
1	Maximum Capacity	10,000
2	External Sales	8,000
3 = 1 - 2	Spare Capacity	2,000
4	Division B's Requirement	5,000
5 = 4 - 3	External Sales Curtailed to meet B's Demand = B's Requirement - Spare Capacity Available = 5,000 units - 2,000 units	3,000

From the above table it can be seen that Division A has a spare capacity of 2,000 units currently. However, if it has to cater to Division B's requirements, external sales have to be curtailed by 3,000 units.

2. Statement of Contribution p.u.

Figures in `

Sr. No.	Options	External Sale	Internal Sale
1	Selling Price p.u.	11,000	10,000
2	*Less:* Variable Cost p.u.	8,000	7,000
3 = 1 – 2	Contribution p.u.	3,000	3,000

Question: (International Transfer Pricing)

Standard Corporation Inc. (SCI) is a US based multinational company engaged in manufacturing and marketing of Printers and Scanners.

It has subsidiaries spreading across the world which either manufactures or sales Printers and Scanners using the brand name of SCI.

The Indian subsidiary of the SCI buys an important component for the Printers and Scanners from the Chinese subsidiary of the same MNC group.

The Indian subsidiary buys 1,50,000 units of components per annum from the Chinese subsidiary at CNY (¥) 30 per unit and pays a total custom duty of 29.5% of value of the components purchased.

A Japanese MNC which manufactures the same component which is used in the Printer and Scanners of SCI, has a manufacturing unit in India and is ready to supply the same component to the Indian subsidiary of SCI at ` 320 per unit.

The SCI is examining the proposal of the Japanese manufacturer and asked its Chines subsidiary to presents its views on this issue. The Chinese subsidiary of the SCI has informed that it will be able to sell 1,20,000 units of the components to the local Chinese manufactures at the same price i.e. ¥ 30 per unit but it will incur inland taxes @ 10% on sales value. Variable cost per unit of manufacturing the component is ¥ 20 per unit. The Fixed Costs of the subsidiaries will remain unchanged.

The Corporation tax rates and currency exchange rates are as follows:

Corporation Tax Rates		Currency Exchange Rates	
China	25%	1 US Dollar ($)	= ` 61.50
India	34%	1 US Dollar ($)	= ¥ 6.25
USA	40%	1 CNY (¥)	= ` 9.80
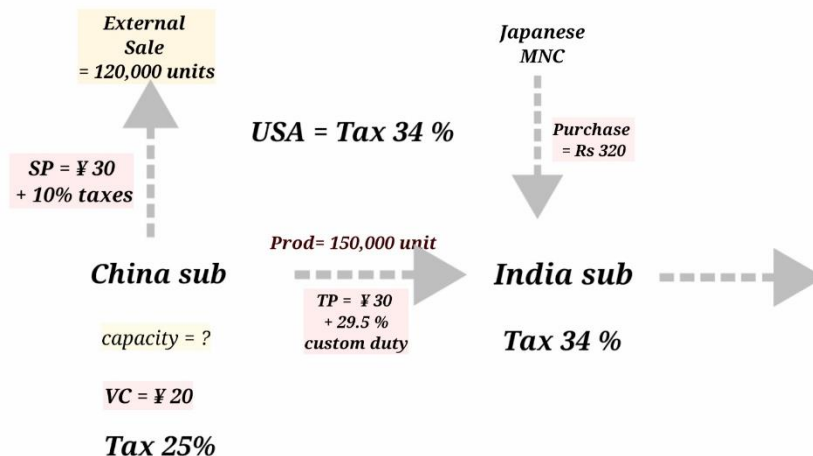
Required

(i)   PREPARE a financial appraisal for the impact of the proposal by the Japanese manufacturer to supply components for Printers and Scanners to Indian subsidiary of SCI. [Present your solution in Indian Currency and its equivalent.]

(ii) IDENTIFY other issues that would be considered by the SCI in relation to this proposal.

(Note: While doing this problem use the only information provided in the problem itself and ignore the actual taxation

rules or treaties prevails in the above mentioned countries)

Solutions:

(i) Impact of the Proposal by the Japanese Manufacturer to Supply Components for Printers and Scanners to the Indian Subsidiary of the SCI.

On Indian Subsidiary of SCI

Particulars	Amount (`)
Cost of Purchase from the Chinese Manufacturer :	
Invoiced Amount {(1,50,000 units × ¥ 30) × `9.80}	4,41,00,000
Add: Total Custom Duty (` 4,41,00,000 × 29.5%)	1,30,09,500
Total Cost of Purchase from the Chinese Manufacturer …(A)	5,71,09,500
Cost of Purchase from Japanese Manufacturer in India:	
Invoice Amount (1,50,000 units × `320)	4,80,00,000
Total Cost of Purchase from Japanese Manufacturer in India …(B)	4,80,00,000
Savings on Purchase Cost Before Corporate Taxes …(A) – (B)	91,09,500
Less: Corporate Tax @34%	30,97,230
Savings after Corporate Taxes	60,12,270

On Chinese Subsidiary of SCI

Particulars	Amount (`)
Loss of Contribution [{(1,50,000 – 1,20,000 units) × ¥ (30 – 20)} × `9.80]	29,40,000
Add: Inland taxes on Local Sale - Chinese Manufacturer [{(1,20,000 units × ¥ 30) × 10%} × `9.80]	35,28,000
Total Loss Before Corporate Taxes	64,68,000
Less: Tax Savings on the Losses (`64,68,000 × 25%)	16,17,000
Net Loss after Corporate taxes	48,51,000

On SCI Group

Particulars	Amount (`)
Saving from Indian Subsidiary	60,12,270
Loss from Chinese Subsidiary	48,51,000
Net Benefit to SCI Group	11,61,270

From the above analysis, it can be seen that the proposal from the Japanese manufacturer in India is beneficial for the SCI as it give a net benefit of `11,61,270.

(ii) The SCI need to consider various other issues before reaching at a final decision of accepting the

proposal of the Japanese manufacturer in India. The few suggestive issues that should be considered are as follows:

- ***The longevity of the proposal of the Japanese manufacturer:*** Whether Japanese manufacturer will supply the components in the future also. For this purpose, ***a long term agreement*** between the Indian Subsidiary of SCI and Japanese manufacturer in India needs to be entered.

- ***Certainty of the fiscal policy in India:*** Japanese manufacturer will not be able to supply the component at the present price if the fiscal policy of India will change in future.

- ***Repatriation(process of returning profit) of Profit earned in India:*** Though the Indian subsidiary is making profit but it depends on the Government policy on the repatriation of profit from India to USA.

- ***Operating Conditions in China:*** The SCI has to make sure that the Chinese subsidiary is operating profitably and ***able to use the spare capacity in the future as well.***

- ***The fiscal policy in China:*** If the Government of China liberalize its fiscal policies in China in future then the manufacturing cost will be cheaper than the today's cost.

Apart from above suggestive points the foreign relations and other tax treaties and accords should also be kept in consideration.

ABC miners operates two divisions, one in Japan and other in United Kingdom (U.K.). Mining Division is operated in Japan which is rich in raw emerald.

The other division is United Kingdom Processing Division. It processes the raw emerald into polished stone fit for human wearing.

The cost details of these divisions are as follows:

Division	Japan Mining Division	United Kingdom Processing Division
	Per carat of raw emerald	Per carat of polished emerald
Variable Cost	2,500 Yen	150 Pound
Fixed Cost	5,000 Yen	350 Pound

Several polishing companies in Japan buy raw emerald from other local Mining Companies at 9,000 Yen per carat. Current Foreign Exchange Rate is 50 yen = 1 Pound. Income Tax rates are 20% and 30% in Japan and the United Kingdom respectively.

It takes 2 carats of Raw Yellow emerald to yield 1 carat of Polished Stone. Polished emerald sell for 3,000 Pounds per carat.
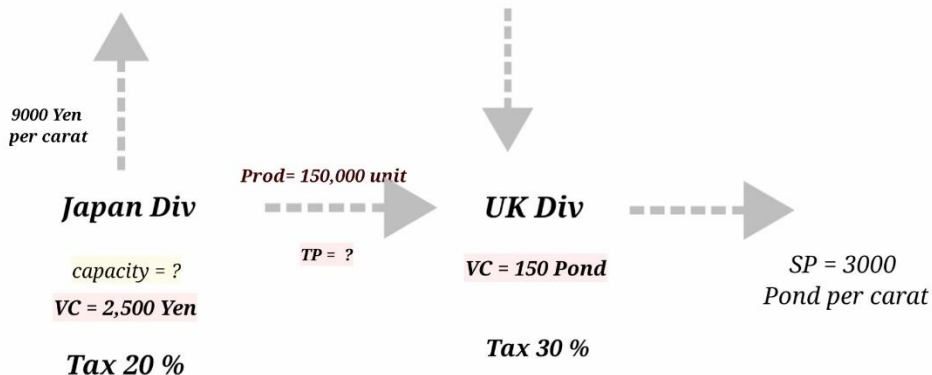
Required

(i)   COMPUTE the transfer price for 1 carat of raw emerald transferred from Mining Division to the Processing Division under two methods - (a) 200% of Full Costs and (b) Market Price.

(ii) 1,000 carats of raw emerald are mined by the Japan Mining Division and then processed and sold by the U.K. Processing Division. COMPUTE the after tax operating income for each division under both the Transfer Pricing Methods stated above in (i).

Solution

(i)   Transfer Price: 200% of Full Cost Basis

=   200% of (¥ 2,500 + ¥ 5,000)

=   ¥ 15,000 or £300 (¥ 15,000/ 50)

Transfer Price: Market Price Basis

=   ¥ 9,000 or £180 (¥ 9,000/ 50)

(ii)   **Statement Showing "Operating Income"**

Particulars	Japan Mining Division		UK Processing Division	
	Transfer Price		**Transfer Price**	
	¥15,000	**¥9,000**	**£300**	**£180**
Selling Price (Polished Stone)	---	---	£3,000	£3,000
Transfer Price (Raw Emerald)	¥ 15,000	¥ 9,000	**---**	**---**
Raw Emerald	---	---	£600 (£300 × 2)	£360 (£180 × 2)
Variable Cost	¥ 2,500	¥ 2,500	£150	£150
Fixed Cost	¥ 5,000	¥ 5,000	£350	£350
Profit Before Tax	¥ 7,500	¥ 1,500	£1,900	£2,140
Less: Tax 20%/ 30%	¥ 1,500	¥ 300	£570	£642
Profit After Tax per Carat of Raw Emerald	¥ 6,000	¥ 1,200	£1,330	£1,498
Raw Emerald	1,000 Carats	1,000 Carats	500 Carats	500 Carats
Total Profit	¥ 60,00,000	¥ 12,00,000	£6,65,000	£7,49,000
	Or	*Or*		
Total Profit (£)	£1,20,000	£24,000	£6,65,000	£7,49,000

Question (May 2018 Exam; Behavioral Consequences)

GL Ltd. is a multiproduct manufacturing concern functioning with four divisions. The Electrical Division of the company is producing many electrical products including electrical switches. This division functioning at its maximum capacity sells its switches in the open market at `25 each. The variable cost per switch to the division is `16.

The Household Division, another division of GL Ltd., functioning at 70% capacity asked the Electrical Division to supply 5,000 switches per month at the rate of `18 each to fit in night lamps produced by it. The total cost per night lamp is being estimated as detailed below;

Components purchased from outside suppliers	50.00
Switch if purchased internally	18.00
Other variable costs	40.00
Fixed overheads	21.00
Total cost per night lamp	129.00

The Household Division is marketing night lamps at a price of `130 each, with a very small margin, as it is doing business in a very competitive environment. Any increase in price made by the division will push out the division from the market. Therefore, the division cannot pay anything more to switches if they the Electrical Division. Further, the manager of the division informed that it is very much essential to keep on the market share for night lamps by the Household Division to retain the experienced workers of the division. The company is using return on investments (ROI) as a scale to measure the divisional performances and also marginal costing approach for decision making.

Required

(iii) Would you RECOMMEND the supply of switches to Household Division by Electrical Division at a price of `18 each? Substantiate your recommendation with suitable reasons. **(5 Marks)**

(iv) ANALYZE whether it would be beneficial to the company as a whole the supply of switches to Household Division at a unit price of `18 by Electrical Division. **(6 Marks)**

(v) Do you feel that- the Divisional Managers should accept the inter-divisional transfers in principle? If yes, what should be the range of transfer price? **(5 Marks)**

(vi) SUGGEST the steps to be taken by the chief executive of the company to change the attitude of divisional heads if they are against the inter-divisional transfers. **(4 Marks)**

Solution:

(i) Electrical Division is operating at full capacity and selling its switches in the open market at `25 each. Therefore, it can transfer its production internally by giving up equal number of units saleable in the open market. In this situation, transfer price should be based on variable cost plus opportunity cost { `16 + (`25 - `16)} = `25/-.

As the price quoted by Household Division `18 is less than the transfer price based on opportunity cost, the Electrical Division should not accept internal transfer. Fur ther, the

company is measuring divisional performances based on ROI. Therefore, transferring for a price which is less than the minimum price would affect the return on investments and divisional performance severely.

(ii) In the total cost per night lamp, the Fixed Overheads being a fixed cost is not relevant for decision making. Similarly, the variable cost of switch (₹ 16 p.u.) included in the cost of night lamp is also irrelevant as it is common for both internal and external transfers. The only relevant cost is the loss of revenue when units are transferred internally.

Accordingly, the benefit from internal transfer would be {₹ 130 - (₹ 50 + ₹ 40) - ₹ 25)
= ₹ 15/- on each unit sale on night lamp. Therefore, it is beneficial to the company as a whole to the extent of ₹ 15 per unit of night lamp sold.

Hence, internal transfer is profitable to the company as a whole. Further, Household Division is operating at 70% capacity and has experienced workers which may be utilized for other divisions requirements if any and based on contribution earned fixed cost could be minimized due to large scale of production.

(iii) Internal transfer pricing develops a competitive setting for managers of each division, it is possible that they may operate in the best interest of their individual performance. This can lead to *sub-optimal utilization of resources*. In such cases, transfer pricing policy may be established to promote goal congruence. The market price of ₹ 25 per switch leaves Electrical Division in an identical position to sale outside. Thus, ₹ 25 is top of the price range. Division Household will not pay to Electrical Division anything above (₹ 130 - ₹ 50 - ₹ 40) = ₹ 40/-. The net benefit from each unit of night lamp sold internally is ₹ 15. Thus, any transfer price within the range of ₹ 25 to ₹ 40 per unit will benefit both divisions. Divisional Managers should accept the inter divisional transfers in principle when the transfer price is within the above range.

(iv) Transfer at marginal cost are unsuitable for performance evaluation since they do not provide an incentive for the supplying division to transfer goods and services internally. This is because they do not contain a profit margin for the supplying division. Chief Executive's intervention may be necessary to instruct the supplying division to meet the receiving division's demand at the marginal cost of the transfers. Thus, divisional autonomy will be undermined. Transferring at cost plus a mark-up creates the opposite conflict. Here the transfer price meets the performance evaluation requirement but will not induce managers to make optimal decisions.

To resolve the above conflicts the following transfer pricing methods have been suggested:

Dual Rate Transfer Pricing System

The supplying division records transfer price by including a *normal profit margin* thereby showing reasonable revenue. The purchasing division records *transfer price at marginal cost* thereby recording purchases at minimum cost. This allows for better evaluation of each division's performance. It also improves co-operation between divisions, promoting goal congruence and reduction of sub-optimization of resources.

Two Part Transfer Pricing System

This pricing system is again aimed at resolving problems related to distortions caused by the full cost based transfer price. Here,

transfer price = marginal cost of production + a lump-sum charge (two part to pricing).

While marginal cost ensures recovery of additional cost of production rela ted to the goods

transferred, lump-sum charge enables the recovery of some portion of the fixed cost of the supplying division. Therefore, while the supplying division can show better profitability, the purchasing division can purchase the goods at lower r ate compared to the market price.
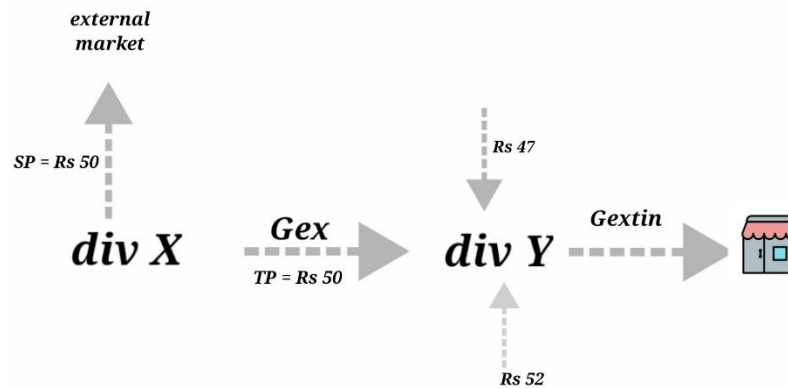
Question: (NOV 2020 Transfer Pricing that promote Goal Congruence)

APC Ltd. has two divisions- Division X and Division Y with full profit responsibility.

Division X produces components 'Gex' which is supplied to·both division Y and external customers.

Division Y produces a product called 'Gextin' which incorporates component 'Gex'.

For one unit of 'Gextin' two units of component 'Gex' and other materials are used.

Till date, Division Y has always bought component 'Gex' from division X at ` 50 per unit since lowest price at which component 'Gex' could have been bought by Division  Y was   ` 52 per unit.

Division X charges same price for component 'Gex' to both division Y and external customers.

However, it does not incur selling and distribution costs when transferring internally.

Division Y has received a proposal from a new supplier who has offered to supply component 'Gex' for `47 per unit at least for next three years.

Manager of Division Y requests the manager of Division X to supply component 'Gex' at or below, ` 47 per unit. Manager of Division X is. not ready to reduce· the transfer price since the divisional performance evaluation is done based on profit margin ratio of the division.

The following additional information is made available to you :

	Component 'Gex' `	Product 'Gextin' `
Selling Price per unit	50	180
Less: Variable Costs		
Direct Materials		
Component 'Gex'	-	100
Other materials	12	22
Direct labour	16	13
Manufacturing Overhead	2	5
Selling and Distribution Costs	4	2
Contribution per unit	16	38
Annual fixed costs	` 40,00,000	` 20,00,000
Annual external demand (units)	3,00,000	1,20,000
Capacity of plant (units)	**5,00,000**	**1,50,000**

Required

(i) CALCULATE the present profit of each division and the company as a whole. **(2 Marks)**

(ii) ANALYSE the impact on the total annual profits of each division and the company as a whole if Division Y accepts the offer of the new supplier. **(4 Marks)**

(iii) In the changed scenario, DISCUSS why the top management should intervene and advise a suitable transfer price for component 'Gex' for resolving transfer pricing conflict which promotes goal congruence through efficient performance of the concerned division. **(4 Marks)**

Answer:

APC Ltd. Transfer Pricing

(i) Profitability of each division and the company as a whole when Division X supplies 240,000 units of Gex annually to Division Y.

Division Y produces 1,20,000 units of Gextin. Each component of Gextin requires 2 components of Gex that it currently procures from Division X. Therefore, it procures 2,40,000 units of Gex from Division X annually.

Division X has an overall capacity of 5,00,000 units annually to produce Gex. Of this it produces 2,40,000 units for Division Y, which it must first cater to. The remaining 2,60,000 units of Gex is sold to external customers.

Divisional and Overall Profitability of APC Ltd.

Sr. No.	Particulars	Division X				Division Y		Total APC Ltd
		Per unit of Gex	External Sales	Internal Sales	Total Division X	Per unit of Gextin	External Sales	
			2,60,000 units	2,40,000 Units	5,00,000 Units		1,20,000 units	
1	Selling Price	50	1,30,00,000	1,20,00,000	2,50,00,000	180	2,16,00,000	4,66,00,000
2	*Less:* Variable Cost							
a	Direct Material							
b	Component Gex	---	---	---	---	100	1,20,00,000	1,20,00,000
c	Other materials	12	31,20,000	28,80,000	60,00,000	22	26,40,000	86,40,000
d	Direct Labour	16	41,60,000	38,40,000	80,00,000	13	15,60,000	95,60,000
e	Manufacturing Over-head	2	5,20,000	4,80,000	10,00,000	5	6,00,000	16,00,000
f	Selling and Distribution Costs	4	10,40,000	----	10,40,000	2	2,40,000	12,80,000
	Total	34	88,40,000	72,00,000	1,60,40,000	142	1,70,40,000	3,30,80,000
3	Contribution (Step 1 - 2)	16	41,60,000	48,00,000	89,60,000	38	45,60,000	1,35,20,000
4	Annual Fixed Cost				40,00,000		20,00,000	60,00,000
5	Annual Profit (Step 3 - 4)				**49,60,000**		**25,60,000**	**75,20,000**

Note

Division X does not incur marketing costs on internal sales. Therefore, cost not incurred on transfer of 240,000 units to Division Y.

(ii) Impact if Division Y accepts to buy 240,000 units of Gex annually from the external supplier at `47 per unit of Gex.

Sr. No.	Particulars	Per unit of Gex	External Sales	Internal Sales	Total Division X	Per unit of Gextin	External Sales	Total
		Division X				**Division Y**		**Total**
			3,00,000 units	0 Units	3,00,000 units		1,20,000 units	
1	Selling Price	50	1,50,00,000	-	1,50,00,000	180	2,16,00,000	3,66,00,000
2	*Less:* Variable Cost							
a	Direct Material							
b	Component Gex	-	-	-	-	94	1,12,80,000	1,12,80,000
c	Other Materials	12	36,00,000	-	36,00,000	22	26,40,000	62,40,000
d	Direct Labour	16	48,00,000	-	48,00,000	13	15,60,000	63,60,000
e	Manufacturing Overhead	2	6,00,000	-	6,00,000	5	6,00,000	12,00,000
f	Selling and Distribution Costs	4	12,00,000	-	12,00,000	2	2,40,000	14,40,000
	Total	34	1,02,00,000	-	1,02,00,000	136	1,63,20,000	2,65,20,000
3	Contribution (Step 1 - 2)	16	48,00,000	-	48,00,000	44	52,80,000	1,00,80,000
4	Annual Fixed Cost				40,00,000		20,00,000	60,00,000
5	Annual Profit (Step 3 - 4)				8,00,000		32,80,000	40,80,000

Analysis

APC Ltd

Overall profitability of APC Ltd. reduces from `75,20,000 per annum to `40,80,000 per annum. ***The reduction in profit is therefore `34,40,000 per annum.***
Reasons are:

(a) ***Cost of manufacturing Gex is only `30 per unit while Division Y is procuring this at `47 per unit from an external supplier***. Annually this results in a loss of `40,80,000 (240,000 units of Gex× `17 per unit).

(b) Since Division X no longer makes Gex for internal sales, it can ramp up its external sales to meet the full annual demand of 300,000 units. ***This results in extra external sales of 40,000 units annually***. Each unit gives a contribution of `16 per unit. Therefore, additional contribution from sale of 40,000 units of Gex to external customers is `640,000 per annum.

(c) Therefore, netting both (a) and (b) above, the net loss to the company is `**34,40,000** per annum.

Division Y

Impact on profit of Division Y, increase from _`25,60,000 per annum to `32,80,000_ _per annum that is `**7,20,000** per annum increase_. This is due to the savings in procurement cost of Gex for Division Y. Instead of procuring Gex at `50 per unit Division Y proposes to buy it at `47 per unit externally. For its annual demand of 2,40,000 units of Gex, **it translates to savings of `7,20,000 annually in procurement cost for Division Y.**

Division X

Impact on profit of Division X, reduction from `49,60,000 per annum to `8,00,000 per annum. _**A substantial reduction of `41,60,000**_ in its divisional profit per year.

Division X earns a contribution of `20 per unit of Gex from its internal transfer to Division Y.

(Selling price `50 per unit less variable cost of manufacturing `30 per unit). If Division Y procures Gex externally, this would result in an annual loss of `48,00,000 in contribution for Division X (240,000 units × `20 per unit).

However, due to additional external sales of 40,000 units of Gex, Division X can earn an additional contribution of `6,40,000 per year (40,000 units of Gex × `16 contribution per unit of external sale).
Offsetting, this results in a lower contribution **of `41,60,000 per annum for Division X.**

This also results in **excess capacity (Unused capacity)** of 2,00,000 units per annum in Division X.

(iii) APC Ltd. can _**suffer a loss of `34,40,000 per annum**_ if Division Y decides to procure Gex from the external supplier.

Unused capacity - It costs on `30 per unit to manufacture Gex internally as compared to `47 per unit that Division Y is willing to pay to the external supplier.

However, Division X is unwilling to reduce the price from `50 per unit since divisional performance is done based on the profit margin ratio of the division.

Therefore, the management of the company has to step in to promote goal congruence. If Division Y buys GEX from the external supplier, not only is it costly for the company, it also results in a lot of unused capacity lying idle in Division X.

In the current scenario, one possible way of arriving at an acceptable transfer price range could be:

Division X is currently working at full capacity of 5,00,000 units per annum. Of this production, 2,40,000 units is supplied internally to Division Y while the balance is supplied to external market. The marginal cost of production of Gex is `30 per unit. If this were sold externally, it would earn a contribution of `16 per unit. **Therefore, the minimum transfer price the Division X would demand = marginal cost of production per unit + opportunity cost per unit = `30 + `16 = `46 per unit of Gex.**

(The other way of looking at this could also be that Division X does not incur any selling and distribution costs on internal transfers.

To outside clients it needs to spend `4 per unit towards the same.

Therefore, to make its price more competitive with the external market, Division X can reduce the price by `4 per unit, which it has been recovering from Division Y for a cost it does not incur in internal transfers. Thus, based on its cost structure and the competitive profit margin it earns from external sales, it can price its internal transfers at `46 per unit.)

Division Y will be willing to pay the lower of net marginal revenue or the external buy- in price.

The Net Marginal Revenue per unit of Gextin = Selling price per Gextin – (marginal cost for Division Y other than the cost of Gex) = `180 - `42 = `138 per unit of Gextin.

This translates that Division Y will be willing to pay upto `69 per unit of Gex, *that it can incur without incurring a divisional loss.*

Meanwhile, the external buy-in price is `47 per unit.

Therefore, the maximum price Division Y will be willing to pay

= lower of Net Marginal Revenue or external buy-in price

= lower of `69 or `47 per unit of Gex.

Therefore, Division Y will be willing to pay maximum `47 per unit of Gex to Division X.

Therefore, transfer price range can be set between `46 - `47 per unit of Gex. Division X would then have to compete with external supplier to retain its internal sales.

This would promote more efficient working between Division X and Y. **By selling it at `46 per unit, the contribution of Division X would be maintained at `16 per unit. For Division Y. the procurement of Gex at `46 per unit would be beneficial since it is lower than the external market price. If transfer price set at external market rate `47 per unit, Division Y would still be able to improve its profit margin as compared to the original transfer price of `50 per unit.**

Given that the marginal cost of manufacturing Gex is only `30 per unit, the management has to ensure that production of Gex is made in-house. Performance measure at a divisional level should then not be restricted to financial performance alone (full profit responsibility) and should be accordingly modified to include non-financial / operational measures as well.

☞

Conceptually correct brief explanation is sufficient.