# CHAPTER 12

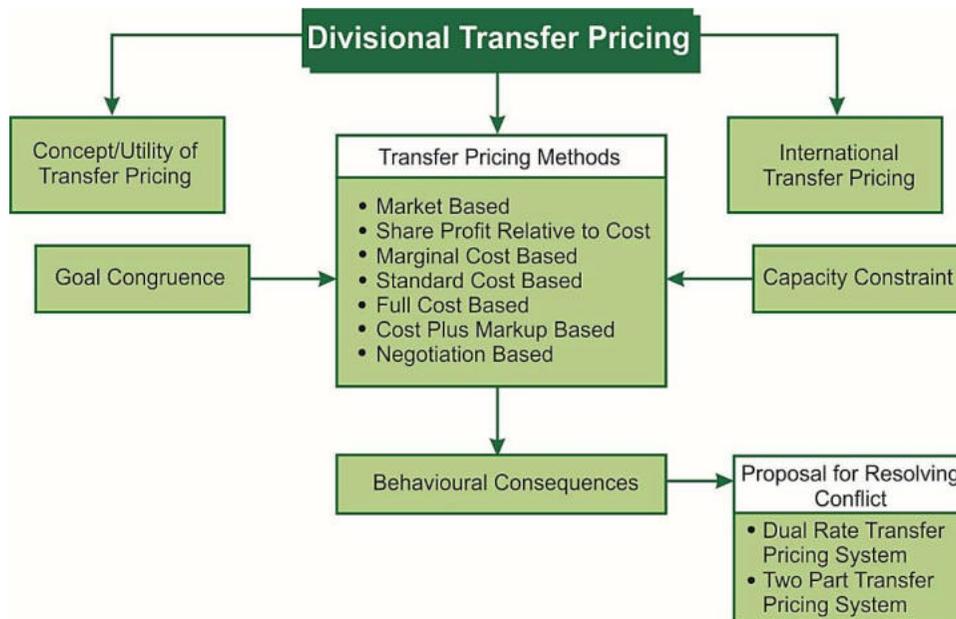# DIVISIONAL TRANSFER PRICING

## LEARNING OUTCOMES

**After studying this chapter, you will be able to:**

❑ EXPLAIN and ILLUSTRATE the basis for setting a transfer price using variable cost, full cost, and the principles behind allowing for intermediate markets

❑ EXPLAIN how transfer prices can distort the performance assessment of divisions and decisions made

❑ COMPARE divisional performance and recognize the problems of doing so

❑ ADVISE on the likely behavioral consequences of performance measurement within an organization

❑ EVALUATE the effects of transfer prices

# CHAPTER OVERVIEW



# A. TRANSFER PRICING

Most business organizations in today's world have a decentralized organization structure. The top management delegates daily operations and decision-making responsibilities to appropriate personnel in the senior, middle and lower management levels. This gives rise to responsibility centres or divisions within the organization structure. Divisions either could be departments within a company or a group companies of a parent organization. Divisional managers are responsible for their assigned division's operations and results. While each division works towards achieving its individual objective, holistically, their goals have to align with the organization's overall business objectives. This concept is called *goal congruence*.

A manager may have the authority to control the division's cost (cost centre) or both cost and revenue (profit centre). Inter-divisional transactions could involve:

- Transfer of goods and services

- Payments for intangibles like intellectual property for usage of brand, patent in the form of royalty fee or license fee.

- Inter-divisional loans at specified interest rates.

In this chapter, our focus is more on inter-divisional transfer of goods and services. Management accounting system at the divisional level should determine a value for such transactions. This valuation is defined as transfer pricing.

Action that divisional managers takes to improve reported profit of their divisions also improve the profit of the company as a whole
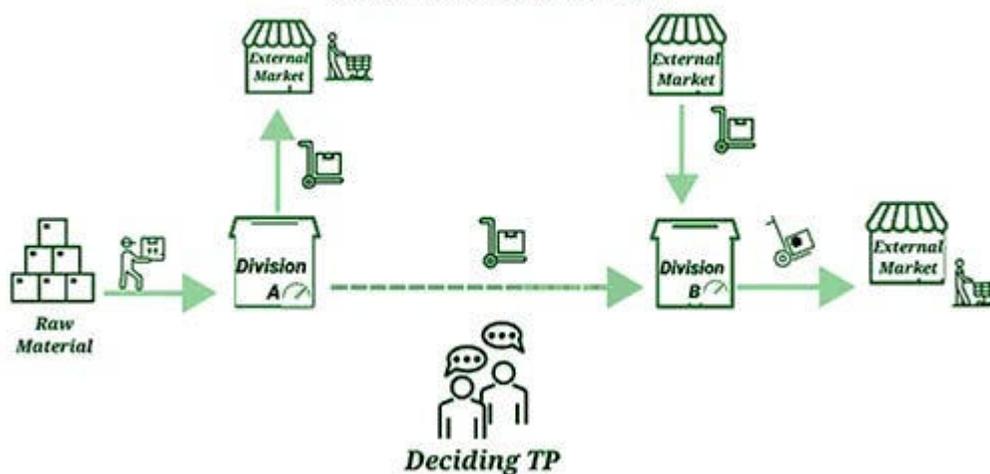
*Figure A.1* –*Overview of Transfer Pricing System*

## 1. Utility of Transfer Pricing

Following are the notable uses of transfer pricing:

(i)    Performance evaluation: Each division becomes profit accountable, which is a key metric to evaluate its performance. This motivates each manager to maximize the division's profitability. Consequently, it improves the scope for company's overall profitability.

(ii)   Employee engagement and compensation: Often managers are compensated based on performance of the division they are responsible for. Since transfer pricing influences financials, it must be priced at a rate that is perceived to be fair by all the concerned divisional managers. Transfer pricing that is unnecessarily detrimental to a division could affect employee morale.

(iii)  Resource allocation: Co-ordination among units for production and sales enables better allocation and utilization of its resources like capacity, manpower etc. Based on transfer price, key decisions regarding operations may be taken, e.g. to produce material in-house or purchase from outside, to expand operations etc. Primary aim of these decisions would be to maximize profits, while also promoting goal congruence among divisions.

(iv)   Taxation and profit remittance: Transfer pricing will impact earnings of multi-national companies having inter-divisional transfers. This could affect the over-all tax burden for the company as well as the profits that may need to be repatriated to its head office.

## 2. A Question of Fair Value?

Transfer pricing is often associated with the term "arms-length" price. This implies that the price for inter-divisional transfer has to be fair and competent enough as if dealing with a third party. The application of the concept of "arms-length" price is more from taxation perspective.

In the accounting records, transfer price would be revenue for the division supplying the goods/services and cost for the division receiving the goods/service. When each division is made profit accountable, any transaction between them becomes more business driven, much like how customers and suppliers compete using bargaining power to set the price. Arriving at a "good-deal" for the division becomes imperative because it influences its profitability. Hence, fair value from a business perspective depends on how each division finds the price compatible with its profit targets.

### Example

Division A produces goods at a cost of ₹10 p.u. and transfers the goods to Division B which has additional costs of ₹5 p.u. Division B sells externally at ₹16 p.u. The company has a policy of setting transfer prices at cost + 20%.

*Calculate:*

(i)    Profit of each division and the overall profit the company made.

(ii)   Write a brief analysis of the results.

### Solution

**(i)**   Division Wise Profitability Statement: Summarizing the information from the question, the division wise profitability statement will be as below:

₹

| Sr. No. | Particulars | Division A | Division B | Company |
|---------|-------------|------------|------------|---------|
| 1 | Own Cost | -10 | -5 | -15 |
| 2 | Transfer-in Price | 0 | -12 | 0 |
| 3 = 1+2 | Total Cost | -10 | -17 | -15 |
| 4 | Revenue<br>(i) Transfer Price of Division A<br>    (Cost ₹10 + 20%)<br>(ii) Selling Price of Division B | 12 | 16 | 16 |
| 5 = 4-3 | Profit | 2 | -1 | 1 |

Profit Split between Divisions

*Note*

Transfer price of ₹12 does not affect the overall company profits since they get eliminated at the time of consolidation. These records are useful for internal evaluation purposes and may not involve actual cash settlement. Therefore, transfer- pricing methodology would greatly influence each division's financials, thereby underlining the need to have an accurate measurement system.

**(ii)** Analysis of the Results: As shown above, Division A shows a profit of ₹2 while Division B shows a loss of ₹1. Division A that incurs 2/3rd of the cost while Division B incurs only 1/3rd of it. The net profit margin for the product is 6.7% (₹1/₹15) while the internal mark-up that Division A charges is 20%. Therefore, Division A will always make a profit. Division B is bearing internal mark-up at a much higher rate than the mark-up it can charge its customers. Therefore, it will always be a loss-making unit.

**Concept Insight**

Behavioural Consequences

Manager of Division B could get *demotivated* since performance of the unit is affected by a higher internal mark-up. Moreover, since the manager of Division A will always make a profit under this method, efforts may not be taken to make costs efficient. The management can take steps to review the following:

(i)   Is the transfer pricing policy of cost plus 20% justified? If so, should the pricing policy for external customers be revised?

(ii)  What share of Division A's costs are controllable? Is it possible for Division A to take measures for cost efficiencies and charge Division B a lower amount?

(iii) Alternatively, should Division B be allowed to source the component from outside?

# B. TRANSFER PRICING METHODS
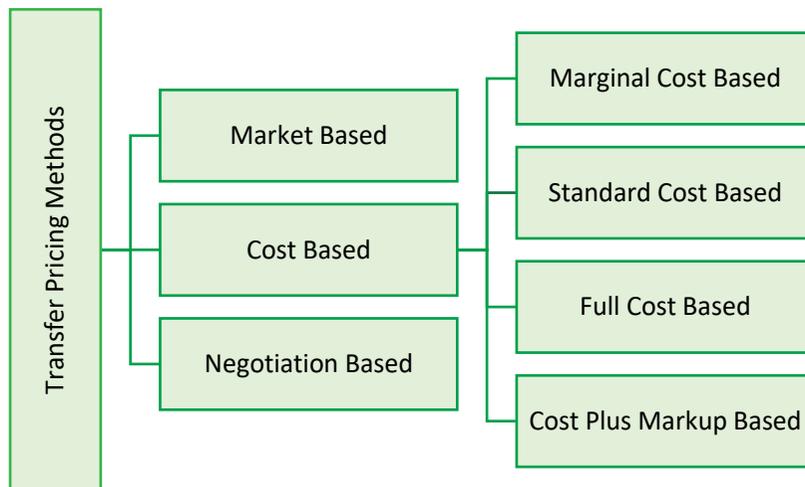
## 1. Market Based Transfer Price

Transfer price is based on market price of goods or services similar to the ones transferred internally within divisions. The transfer can be recorded at the external market price, adjusted for any costs that can be saved by internal transfer e.g., selling and distribution expenses, packaging cost.

*Advantages*

- Since demand and supply determine market price, it is likely to be unbiased.

- Market prices are less ambiguous compared to cost-based pricing. They cannot be manipulated.

- Since the pricing is competitive, divisional performance can be linked more objectively to its contribution to the company's overall profits.

*Disadvantages*

- Market price may not be completely unbiased, if a competitive environment does not exist. Examples could be a distress sale market or manipulative pricing strategies (like price discrimination) that could distort the market price.

- May not be suitable when market prices can fluctuate widely or quickly.

- Goods that are transferred may be at an intermediate stage in the production process. At times market price may not be available for such intermediate goods.

> **Concept Insight**
> <u>Behavioural Consequences</u>
> The existence of an external market promotes competitiveness within the entity. Both managers will be motivated to improve performance. The supplying division will have to compete with the outside vendor that may lead to cost competitive operations. The purchasing division has more alternatives to choose from. However, the purchasing division must ensure that quality of the goods is also comparative. Generally, goods produced in-house may be as per specifications unique to the company's products. Goods purchased externally may require additional work that involves additional cost.

**Shared Profit Relative to Cost Based Transfer Price**

Shared profit relative to cost method is an alternative to market price method. Cost incurred by each division indicates the value it has added to the product cost, that is finally used to arrive at the selling price of the final product. The primary advantage of this method is that *it allocates profit based on the proportion of value addition to the product in terms of cost*.

**Example**

*Market Price and Shared Contribution Method*

A manufacturer of cornflakes has two divisions, one producing the cornflakes and another packaging division that manufactures cartons. The production division purchases all the cartons from the packaging division. Cost of cartons from outside vendors would be:

| Number of Cartons | (₹) |
|---|---|
| 5,000 | 77,000 |
| 8,000 | 95,000 |

Production cost incurred by the packaging division for similar volume of cartons:

| Number of Cartons | (₹) |
|---|---|
| 5,000 | 75,000 |
| 8,000 | 80,000 |

The production and sale of the final product, cornflakes are as below:

| Volume (Number of cartons of Cornflakes sold) | Total Cost (Excluding Cost of Cartons) ₹ | Sales Value (Packed in Cartons) ₹ |
|---|---|---|
| 5,000 | 1,20,000 | 2,00,000 |
| 8,000 | 1,80,000 | 3,00,000 |

An appropriate transfer pricing policy is being framed. As the corporate management accountant, *Calculate-*

(i) The transfer pricing based on (1) shared profit relative to cost method and (2) market method. Show the profitability of each division under both methods.

(ii) Discuss the effect of both methods on the profitability of the divisions.

**Solution**

(i) Calculation of Profitability under both methods

Method 1: *Shared Profit Relative to Cost Method*

Methodology: Calculate the profit for both volume of cartons 5,000 units and 8,000 units. Information about sales and costs are given in the problem and tabulated as below.

**Statement of Profitability - Shared Profit Relative to Cost Method**

| Volume (Number of Cartons) | 5,000 | 8,000 |
|---|---|---|
|  | Figures in ₹ | |
| Sales                                    ...(a) | 2,00,000 | 3,00,000 |
| *Less:* Costs |  |  |

| | | |
|---|---|---|
| Production Division | 1,20,000 | 1,80,000 |
| Packaging Division | 75,000 | 80,000 |
| Total Costs ...(b) | 1,95,000 | 2,60,000 |
| Profit ...(a) - (b) | 5,000 | 40,000 |

The next step is to distribute this profit between the divisions based on the cost incurred. This is done for both levels of production.

### Distribution of Profit Based on Relative Cost

| Volume (Number of Cartons) | 5,000 | 8,000 |
|---|---|---|
| | Figures in ₹ ||
| Share of Production Division | | |
| (5,000 × 1,20,000 / 1,95,000) | 3,077 | ××× |
| (40,000 × 1,80,000 / 2,60,000) | ××× | 27,692 |
| Share of Packaging Division | | |
| (5,000 × 75,000 / 1,95,000) | 1,923 | ××× |
| (40,000 × 80,000 / 2,60,000) | ××× | 12,308 |
| Total Profit | 5,000 | 40,000 |

The last step is to calculate transfer price of cartons that packing division will charge the production division = manufacturing cost of cartons + profit that is allocable to it under the shared profit method (refer workings above).

### Transfer Prices of Cartons under the Shared Profit Relative to Cost Method

| Volume (Number of Cartons) | 5,000 | 8,000 |
|---|---|---|
| | Figures in ₹ ||
| Manufacturing Cost of Cartons | 75,000 | 80,000 |
| Profit Allocated *as per working above* | 1,923 | 12,308 |
| Transfer Price | 76,923 | 92,308 |
| Transfer Price p.u. | 15.38 | 11.54 |

Method 2: *Market Price Method*

Methodology: Transfer price for the cartons is already given. It is the external market price of the cartons. This is viewed as an unbiased price, that the packaging division will charge the production division. The profitability statement will be as below:

**Statement of Profitability - Market Price Method**

| Volume (Number of Cartons) | 5,000 | 8,000 |
|---|---|---|
| | Figures in ₹ | |
| **Packaging Division** | | |
| Market Price (transfer price basis) | 77,000 | 95,000 |
| *Less:* Manufacturing Cost | 75,000 | 80,000 |
| Profit of Packaging Division ...(a) | 2,000 | 15,000 |
| **Production Division** | | |
| Sales | 2,00,000 | 3,00,000 |
| *Less:* | | |
| Transfer-in Price | 77,000 | 95,000 |
| Product Cost | 1,20,000 | 1,80,000 |
| Profit of Production Division ...(b) | 3,000 | 25,000 |
| Total Company Profit ...(a)+(b) | 5,000 | 40,000 |

Transfer price per unit will be based on the external market price given in the problem.

**Transfer Prices of Cartons under Market Price Method**

| Volume (number of cartons) | 5,000 | 8,000 |
|---|---|---|
| Market Price of Cartons | 77,000 | 95,000 |
| Transfer Price *per carton p.u.* based on Market Price = Market Price/ Number of Carton | 15.40 | 11.88 |

(ii)  Analysis of Results

Overall company profits are the same under both methods. It is the distribution between the divisions that is different, depending on the method followed. Consequently, the transfer price per unit that the packaging division charges the production division will also be different.

When production volume is 5,000 cartons, transfer price per unit is approximately the same under both methods ₹15.38 and ₹15.40 shared profit and market price method respectively. This is because the cost of production for this volume is approximately the same as the outside procurement price. Similarly, when production volume is 8,000 cartons, transfer price per unit under the shared profit method has a slightly lower transfer price because lower profit has been allocated to packaging department.

When the volume increases to 8,000 cartons, in-house production has benefitted from economies of scale. The cost of manufacturing one carton is ₹15 p.u. for 5,000 carton

(₹75,000/ 5,000 cartons) while it reduces to ₹10 p.u. when volume increases to 8,000 cartons (₹80,000 / 8,000 cartons). Cost reduction is almost 33% due to economies of scale.

On the other hand, at 8,000 carton volume, the production department has not benefitted much from economies of scale. Cost of manufacturing a carton of cornflakes excluding packing cost is ₹24 for 5,000 cartons (₹1,20,000/ 5,000 cartons) and is marginally lower at ₹22.50 p.u. for 8,000 cartons (₹1,80,000/ 8,000 units). Cost reduction is only 6% due to economies of scale.

Therefore, when production volume is 8,000 units, out of the total production cost of ₹2,60,000, major portion of the cost pertains to production department. Consequently, when profit gets allocated based on cost, more profit has been allocated to the production division and lesser percentage to packaging department. Hence the transfer price base is lower at ₹92,308 under the shared profit method as compared to the market price method which is at ₹95,000.

## 2. Cost Based Transfer Price

Cost based pricing models are based on the internal cost records of the company. They may be used when the management wants to benchmark performance with the cost targets set within the company or may be an alternative when market prices for the goods cannot be determined due to lack of comparable market. Cost based transfer price may consider variable cost, standard cost, full cost and full cost plus mark-up. Therefore, the basis for cost price may be subjective and has to adapted based on its suitability to the entity.

*Advantages*

- Performance can be benchmarked to internal cost targets (budgets).

- Information is more easily available as compared to market price. While evaluating performance, cost components can be broken down further for internal analysis. Hence, the basis for transfer pricing is more clearly defined as compared to market price, which may be subject to the vagaries of demand and supply.

*Disadvantages*

- The cost basis on which transfer pricing is used can be subjective since there can be multiple ways of interpreting costs. Variable cost, standard cost, full cost are some of those methods. Managers may not always agree on the basis to be followed, since each will try to use the one most beneficial to their division.

- Since cost is passed on to another division, there may be instances when managers of the supplying division may find little incentive to lower the cost of production by adopting cost efficient methods.

**Marginal Cost Based Transfer Price**

Transfer price is recorded marginal cost required to produce one additional unit.

*Advantage*

▪ Useful when the supplying division has excess capacity. The method ensures that the supplying division recoups the cost of internal transfer, while the purchasing division enjoys the benefit of a lower price compared to the market.

*Disadvantage*

▪ No fixed cost or mark-up is allowed to be charged to the purchasing division. Each unit of internal sale will hence result in a loss at approximately fixed cost per unit.

> **Concept Insight**
> Behavioural Consequences
> In such a setup, profit evaluation is centralized at the entity level. Therefore, the supplying division may have little incentive to find measures for making cost efficient. Non-recovery of fixed costs would demotivate the supplying division. It may oppose certain decisions like capacity expansion or further infusion of investment, that lead to higher fixed costs.

**Standard Cost Based Transfer Price**

Transfer price is recorded at a predetermined cost, which is based on budgets and certain assumptions regarding factors of productions like capacity utilization, labor hours etc. Any variance between the cost absorbed using standard cost and the actuals, is either absorbed by the supplying unit or in some cases could be passed to the purchasing unit as well.

*Advantage*

▪ Performance evaluation can be done against budgeted cost targets. Facilitates better understanding of costs through variances. This enables the manager to take measures to improve performance.

*Disadvantage*

▪ Profit performance measurement is centralized and cannot be measured for individual divisions.

> **Concept Insight**
> Behavioural Consequences
> Budgeted costs are generally based on historic records. Therefore, little incentive exists to make costs more efficient to improve profitability.

**Full Cost Based Transfer Price**

Transfer price is based on full product cost. It includes cost of production plus a share of other costs of the value chain like selling and distribution, general administrative expense, research and development etc.

*Advantage*

▪ Full cost of goods transferred is recovered hence the supplying division will not show a loss.

*Disadvantage*

▪ Since mark-up cannot be charged on internal transfers, the supplying division does not record any profit on these sales. This is a disincentive for the supplying division.

**Cost plus a Mark-up Based Transfer Price**

Transfer price is based on full product cost plus a mark-up. Mark-up could be a percentage of cost or of capital employed.

*Advantage*

▪ Since the supplying division makes a profit, this method addresses the disincentive problem discussed above in the full cost method.

*Disadvantage*

▪ Since the transfer price under this method could closely approximates its market price, the purchasing division may bear a share of the selling expenses although none was incurred for such internal sales. Again, this could distort the performance of purchasing division. Therefore, it is essential to adjust the transfer price for such *cost savings*.

**Concept Insight**

Behavioural Consequences

The problem with using full cost as a basis for transfer pricing is that it distorts the company's cost structure while making decisions. The purchasing department would view the cost as a variable one, since it varies in proportion to the units purchased internally. In reality, this price includes a portion of fixed costs of the supplying division that is anyway a sunk cost. Consequently, the market price that the purchasing division may calculate based on the transfer price for the input supplied, may be slightly inflated.

Special orders from purchasing division may typically be placed to meet short term demands. If transfer price is quoted at below full cost may be rejected because they could result in a loss for the supplying division. This could lead to sub-optimization of resources. Fixed costs remain constant in the short run, while the contribution margin from such special orders may have benefited the company as a whole. In such cases, management intervention has to happen for goal congruence.

### 3. Negotiation Based Transfer Price

This is a go-between between market and cost methods. Managers of the purchasing and supplying divisions independently negotiate and arrive at a mutually agreeable transfer price.

*Advantage*

▪ Managers are given autonomy to decide whether to purchase (or sell) from its sister unit or source then from (or to) external market.

*Disadvantage*

▪ This method requires sufficient external information to be available regarding the external market price, terms of trade etc. Internal cost information must also be shared in order to negotiate a reasonable price.

> **Concept Insight**
> Behavioural Consequences
> These negotiations act as an integrating tool among the departments, it provides for autonomy in decision making at the same time promotes goal congruence through efficient performance of the concerned divisions.
>
> While autonomy is given to the managers, top management intervention may be required if decisions lead to *sub-optimal utilization of resources*. For example, when the purchasing division decides to procure from an external vendor quoting a lower price, at the same time supplying division has excess capacity, the management may have to intervene to ensure that resources are used optimally and that the decision benefits the company as a whole.
>
> Negotiated prices depend on the ability of the manager to bargain on behalf of the division. This could affect the division's performance. The process may be time consuming that could even lead to conflict among the units.

## C. TRANSFER PRICING AND GOAL CONGRUENCE

Since 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.

Range of transfer price that promotes goal congruence:

(i) Minimum Transfer Price (determined by the supplying division)

= Additional Outlay Cost per unit + Opportunity Cost per unit.

Additional Outlay Cost

= Marginal Cost + Any Additional Incidental Costs *incurred by the supplying division e.g., storage, transportation etc.*

Opportunity Cost is the benefit that is foregone from selling internally rather than externally.

(ii) Maximum Transfer Price (determined by the purchasing division)

= Lower of Net Marginal Revenue and the External Buy-in Price

Net Marginal Revenue

= Marginal Revenue (i.e. Selling Price p.u.) – Marginal Cost to Purchasing Division

**Example**

Division A transfers goods to Division B. Division A incurs marginal cost of ₹10 p.u. and Division B incurs marginal cost of ₹5 p.u to process it further. Division B sells finished product externally at ₹20 p.u.

To promote goal congruence:

(i)   What should be the minimum transfer price that Division A should charge? Assume there is no external market for this intermediate product.

(ii)  If Division B can buy the intermediate part externally for (i) ₹14 p.u. (ii) ₹18 p.u what should be the maximum price that Division A can charge to remain competitive with the external vendor?

(iii) Assume that intermediate goods of Division A can be sold externally at ₹12 p.u. How does opportunity cost affect the transfer price range when Division B can procure the part externally at ₹14 p.u.?

**Solution:** Tabulating the information

| Sr. No. | Particulars | Division A (₹) | Division B (₹) | |
|---------|-------------|----------------|----------------|---|
| 1 | Transfer-in Price | ? | ? | Net Marginal Revenue = ₹20 (MR) - ₹5 (MC) = ₹15 p.u. Higher Transfer Price will result in loss |
| 2 | Marginal Cost | -10 | -5 | |
| 3 = 1+2 | Total Cost | -10 | -5 | |
| 4 | Selling Price | | 20 | |

Min. Recovery needed for Div. A

Range of transfer price that promotes goal congruence:

(i)   Minimum Transfer Price

= Marginal Cost p.u. to Division A = ₹10 p.u.

Note there is no opportunity cost here. Hence, the minimum that Division A will wish to recover will be the marginal cost (or variable cost) p.u. that it incurs, which here is ₹10 p.u.

(ii)  Calculation of maximum transfer price when Division B can procure externally.

Maximum Transfer Price

= Lower of Net Marginal Revenue and the External Buy-in Price

Net Marginal Revenue

= Marginal Revenue – Marginal Cost to Division B

= ₹20 - ₹5

= ₹15 p.u.

This is the maximum price that Division B will pay for the intermediate good, whether it purchases from Division A or procures from outside. Any higher is a loss to Division B.

Case 1: When procurement price is ₹14 p.u.

Maximum Transfer Price

= Lower of Net Marginal Revenue ₹15, the External Buy-in Price ₹14

Maximum transfer price in this case will be external buy-in price ₹14 p.u. While, Division B can afford to pay upto ₹15 p.u. to break even, it will prefer to buy at a lower rate from the external vendor as that would yield a profit of ₹1 p.u. (selling price ₹20 – MC ₹5 – purchase price ₹14). Hence, for Division A to remain competitive, it can charge no more than ₹14p.u. Since MC of Division A is only ₹10 p.u. with no opportunity cost, a maximum price of ₹14 p.u. should be acceptable to Division A as well.

To conclude transfer price range between ₹10 and ₹14p.u. will promote goal congruence.

Case 2: When procurement price is ₹18 p.u.

Maximum Transfer Price

= Lower of Net Marginal Revenue ₹15, the External Buy-in Price ₹18

Maximum transfer price in this case will be the net marginal revenue ₹15 p.u. External buy-in price of ₹18 p.u. will result in losses for Division B. Hence, Division A here can charge upto ₹15 per unit. With no other opportunity cost, Division A can have a reasonable margin, while Division B can procure the intermediate product at a price lower than market.

To conclude transfer price range between ₹10 and ₹15 p.u. will promote goal congruence.

(iii) Range when opportunity costs exists for Division A and Division B has buy-in price ₹14 p.u.

When Division A can sell externally at ₹12 p.u.

Minimum Transfer Price

= Marginal Cost per unit + Opportunity Cost per unit.

Opportunity Cost per unit

= External Sale Price – Marginal Cost

= ₹12 - ₹10

= ₹2, this represents the contribution per unit when external sales are made by Division A.

For the internal transfer to Division B to be equally profitable, Division A will demand a minimum price of ₹12 = marginal cost ₹10 + opportunity cost ₹2.

As explained in sub-question (ii), Case 1, Division B will be ready to pay maximum ₹14 p.u. which is the buy-in price. Hence, subject to negotiating skills of manager of Division B, the transfer price can be set between ₹12 p.u. - ₹14 p.u. The ideal transfer price would be ₹12 p.u. Division A is able to achieve profitability at par with its external sales, while Division B can procure its material at a much lower cost.

# D. TRANSFER PRICING DECISION, DIFFERENT CIRCUMSTANCES

## 1. Different Capacity Levels

When the *supplying division has excess capacity*, the range for transfer pricing would be

(1)  Minimum Transfer Price

   =  Marginal Cost p.u.

This ensures that the supplying department is able to recoup at least its additional outlay incurred on account of the transfer. Fixed cost is a sunk cost hence ignored.

Since capacity can be utilized further, it would be optimum for the supplying division to charge only the marginal cost for internal transfer. The purchasing division gets the advantage getting the goods at a lower cost than market.

(2)  Maximum Transfer Price

   =  Lower of Net Marginal Revenue and the External Buy-in Price

When the *supplying division operates at full capacity*, the range for transfer pricing would be

(1)  Minimum Transfer Price

   =  Marginal Cost p.u. + Opportunity Cost p.u.

Since the supplying division is operating at full capacity, it has no incentive to sell the goods to the purchasing division at a price lower than the market price. If the internal order is accepted, capacity is diverted towards this sale. Hence the supplying division would additionally charge the lost contribution from external sales that had to be curtailed.

(2)  Maximum Transfer Price

   =  Lower of Net Marginal Revenue and the External Buy-in Price

**Example**

A company has a division A producing three products called X, Y, Z. Each product can be sold in the open market in the following manner.

Maximum external sales are X 800 units, Y 500 units, Z 300 units. All figures in ₹

| Particulars | X | Y | Z |
|---|---|---|---|
| Selling Price *per unit* | 96 | 92 | 80 |
| Variable Cost of Production in Division A | 33 | 24 | 28 |
| Labour Hours Required *per unit* in Division A | 6 | 8 | 4 |

Product Y can be transferred to Division B, but the maximum quantity that might be required for transfer is 300 units of Y.

Division B could buy similar product in the open market at a price of ₹45 p.u.

(i)   What should be the transfer price per unit for 300 units of Y, if the total labor hours available with Division A are:

(a)   13,000 hours   (b)   8,000 hours   and   (c)   12,000 hours.

(ii)   Indicate the transfer pricing range that can promote goal congruence.

**Solution**

Division A has two type of clientele, external customers and Division B. Capacity in Division A is defined by the number of labor hours available for production.

The total hours needed to meet external demand is 10,000 hours as explained below:

**Statement of Hours Needed for External Sales**

| External Sales | Qty | Hours p.u. | Total Hours Needed |
|---|---|---|---|
| X | 800 | 6 | 4,800 |
| Y | 500 | 8 | 4,000 |
| Z | 300 | 4 | 1,200 |
| Hours Needed for External Sales | | | 10,000 |

Case 1: When 13,000 hours are available, after meeting the external demand requiring 10,000 hours, Division A will have surplus capacity of 3,000 hours.

Hours needed to produce 300 units of Y = 300 × 8 hours = 2,400 hours. Since Division A has surplus capacity, it can meet the demand of Division B also without curtailing its external sales. Hence, there is no opportunity cost on account of lost contribution.

Transfer price range:

Minimum Transfer Price p.u.

=   Marginal Cost of Production p.u. of Y = ₹24.

Maximum Transfer Price

=   Lower of Net Marginal Revenue and the External Buy-in Price

The Maximum Transfer Price would be the External Procurement Price for Division B

=   ₹45 p.u.

Note: Additional cost information related to Division B would be needed to calculate net marginal revenue.

Case 2: When 8,000 hours are available, Division A has limited capacity as explained below.

The total hours needed for external sales is 10,000 and those need for internal transfer is 2,400 hours. In all, 12,400 hours are needed, when only 8,000 hours are available. There is a shortfall of 4,400 hours. Capacity is hence limited.

Therefore, labor hours have to be utilized optimally. This is determined by calculating the contribution per hour from sale each product that is sold externally. It determines how valuable each hour is product wise.

**Statement of Product Wise Contribution *per hour***

| Sr. No. | Particulars | X | Y | Z |
|---------|-------------|-----|-----|-------|
| 1 | Selling Price p.u. | 96 | 92 | 80 |
| 2 | *Less:* Variable Cost p.u. | 33 | 24 | 28 |
| 3 = 1 - 2 | Contribution p.u. | 63 | 68 | 52 |
| 4 | Labour hours needed p.u. | 6 | 8 | 4 |
| 5 = 3 / 4 | Contribution per hour | 10.50 | 8.50 | 13.00 |
| 6 | Ranking high to low | II | III | I |

Product Z gives the maximum contribution per hour, hence ranked 1. Product X and Y follow at rank 2 and 3 respectively. This is the basis to allocate limited hours for optimal production in Division A.

The entire demand of Product Z will be produced first. This requires 1,200 hours. Out of the balance 6,800 hours, Product X will require 4,800 hours. This leaves a balance of 2,000 hours for Product Y. Product Y requires 8 hours p.u. Hence maximum production of product Y = 2,000 hours/ 8 = 250 units.

**Statement of Optimum Mix**

| Total Hours Available 8,000 | | | | | |
|---------|-------------------|------|---------------|----------------------|---------------------|
| Priority | External Sales | Qty | Hours p.u. | Total Hours Needed | Remaining Hours |
| 1 | Z | 300 | 4 | 1,200 | 6,800 |
| 2 | X | 800 | 6 | 4,800 | 2,000 |
| 3 | Y | 250 | 8 | 2,000 | - |
| Total Hours Needed for External Sales | | | | 8,000 | |

If Division A accepts to produce 300 units of Y for Division B, the total hours required for internal sales would be 2,400 hours. This can be catered to by curtailing its external sales. 2,000 hours from production of external sales of Product Y is first diverted and the balance 400 hours are diverted from production of Product X. Hence this results in lost contribution, an opportunity cost that has to be included in transfer pricing.

Contribution Lost from Reduced External Sales

= Product Y (2,000 hours × contribution per hour of ₹8.5) + Product X (400 hours × contribution per hour of ₹10.5)

= ₹17,000 + ₹4,200 = ₹21,200

On a per unit basis, lost contribution works out to 21,200 / 300 units = ₹70.66

Therefore, Transfer Price

= Marginal Cost p.u. + Contribution Lost from Reduced External Sales

= ₹24 + ₹70.66 = ₹94.66

Since Division B can source at ₹45, it would be cheaper to purchase the component from outside.

Case 3: When 12,000 hours are available, Division A has limited capacity as explained below.

The total hours needed for external sales is 10,000 and those need for internal transfer is 2,400 hours. In all, 12,400 hours are needed, when only 12,000 hours are available. There is a shortfall of 400 hours. Capacity is hence limited.

Therefore, labor hours have to be utilized optimally. Again, as explained in Case 2, this is determined by calculating the contribution per hour from sale each product that is sold externally. Referring to the table above, Contribution per hour is X: ₹10.5; Y: ₹8.5 and Z: ₹13. Accordingly, production wise Z will be given first priority, followed by X and then Y.

The entire demand of Product Z will be produced first. This requires 1,200 hours. Out of the balance 10,800 hours, Product X will require 4,800 hours. This leaves a balance of 6,000 hours for Product Y. Product Y requires 8 hours p.u. External sales of product require 4,000 hours (500 units × 8 hours p.u.).

### Statement of Optimum Mix

| Total Hours Available 8,000 | | | | | |
|---|---|---|---|---|---|
| Priority | External Sales | Qty | Hours p.u. | Total Hours Needed | Remaining Hours |
| 1 | Z | 300 | 4 | 1,200 | 10,800 |
| 2 | X | 800 | 6 | 4,800 | 6,000 |
| 3 | Y | 500 | 8 | 4,000 | 2,000 |
| Total Hours Needed for External Sales | | | | 10,000 | |

This leaves 2,000 hours available for production of 300 units of Y to be sold to Division B. These 300 units will require 2,400 hours (300 units × 8 hours p.u.). Hence, there is a shortfall of 400 hours to meet this internal demand. This shortfall of 400 hours will be made up with diverting hours earmarked for external sale of Product Y (Rank 3 as explained in the table above). Loss of contribution on account of curtailed sales would then be built into the transfer price.

Contribution Lost by Diverting 400 hours from Product Y for External Sales

- = 400 hours × contribution per hour
- = 400 hours × ₹8.5
- = ₹3,400.

On a per unit basis,

- = 3,400 / 300 units = ₹11.33

Therefore, Transfer Price

- = Marginal Cost p.u. + Contribution Lost from Reduced External Sales
- = ₹24 + ₹11.33
- = ₹35.33

Division B can source this at ₹45 p.u. from outside. Hence transfer price can be in the range ₹35.33 to ₹45.

## 2. 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 the purchase of another machine requiring additional space. This **increases the fixed cost** incurred by the 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 | 4,30,000 |
| 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 ₹4,30,000 that would increase by ₹50,000 for every extra 10,000 units produced over 30,000 units. Hence total fixed cost will be 5,30,000.

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, the *best strategy* for Division A would be to transfer 45,000 units to Division B and sell 5,000 units externally.

Minimum Transfer Price

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

If 45,000 units are not transferred to Division B then next best alternative would be *either* sell 30,000 units to external market, sell 15,000 units to special order and transfer 5,000 units to Division B (partial transfer) *or* sell 30,000 units to external market and transfer 20,000 units to Division B (partial transfer); all cases yielding contribution of ₹15 per unit. This is the *opportunity cost* for Division A for choosing the best strategy.

In all above options (best strategy and other alternatives) Division A will work on full capacity and outlay on manufacturing fixed cost and selling cost will be the *same*. Therefore, impact of *additional outlay* on the minimum transfer price per unit will be nil.

Therefore, Minimum Transfer Price that Division A will Demand

= ₹55 + ₹15

= ₹70

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

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

# E. PROPOSALS FOR RESOLVING TRANSFER PRICING CONFLICT

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

## 1. 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 the company's overall records.

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

## 2. 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 related 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 a lower rate compared to the market price.

## Case Scenario

*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.

## F. 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.

In few cases, they could be inter-company loans to take advantage of excess funds lying with a company, meeting the needs of a company in another country.

Taxation, profit repatriation and transfer prices are critical considerations to the senior management of the multi-national companies. Multi-national organizations try to maximize profits by using transfer pricing as a tool to *reduce the tax impact* on earnings. Where, the supplying division is in a country with higher tax rate, the transfer price will be set lower in-order to reflect higher earnings (resulting from lower purchase cost) in the purchasing division, which has a lower tax rate. Likewise, supply from lower tax rate countries may be priced higher, in order to reflect higher earnings for that unit, thereby reducing the tax impact.

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.

### Example

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. The 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, the 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 the 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?

Key Considerations: Contribution p.u. under external and internal sale options and the tax impact.

Methodology:

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. The 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, it is operating at full capacity of 10,000 units, an additional 2,000 units are being produced. As per working note 2, contribution from each option is the same at ₹3,000 p.u.

Additional Contribution

=  2,000 units × ₹3,000 p.u.

=  ₹60,00,000.

Division A pays tax in India at 30%.

Hence, the Net Tax Contribution

=  ₹60,00,000 × (100% - 30%)

=  ₹42,00,000.

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)

=  ₹50,00,000.

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

=  ₹50,00,000 × (100% - 40%)

=  ₹30,00,000.

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

As explained above, Division A benefits by ₹42,00,000 while Division B incurs an extra cost of ₹30,00,000. Hence, the net after tax benefit to the company is ₹12,00,000.

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 |

## Illustration 1

*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)** <div align="center">**Statement Showing "Operating Income"**</div>

| 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 |

### International Transfer Pricing and Currency Management

International firms are exposed to exchange fluctuation risks. These fluctuations create uncertain cash flows in corporate currency and also can misrepresent performance of subsidiaries. With inter-divisional trading between subsidiaries in different countries, when one subsidiary makes a loss on a contrary exchange rate movement, the other will make a profit. The company as a whole should manage its exposures to currency risks. The management of currency risk is the responsibility of either the profit centre managers or a treasury department. A multinational company might be keen to set transfer prices in a currency such that any *currency losses arise in the subsidiary in the high-tax country, and currency profits arise in the country with the lower tax rate* if it is fairly - certain about exchange rate movement in the future.

### Conclusion

From the discussion above, we can conclude that transfer pricing is not just about passing on the charge from one division to another. They are vitally important because financial results are greatly influenced by transfer prices. They impact management decision making, employee performance and morale as well as certain investment decisions. Many times, these factors determine the success of businesses.

## SUMMARY

- ❑ Divisions could be departments within a company or group companies of a parent organization.

- ❑ Inter divisional transfers could involve transfer of goods and services, payments for intangibles like intellectual property for usage of brand, patent in the form of royalty fee or license fee, or inter-divisional loans at specified interest rates.

- ❑ Valuation of inter-divisional transfer of goods and services in the management accounting system is called Transfer Pricing

- ❑ Utility of Transfer Pricing – Performance Evaluation (profit accountable divisions), Employee Engagement and Compensation (motivates employees in improving divisional profits), Resource Allocation (optimisation of resources and critical like make or buy), Taxation and Profit Remittance (impact earnings of multi-national companies affecting the over-all tax burden for the company as well as the profits that may need to be repatriated to its head office).

- ❑ Fair Value – Transfer Pricing is often associated with the term "arms-length" price. This implies that the price for inter-divisional transfer has to be fair and competent enough as if dealing with a third party. Fair value from a business perspective depends on how each division finds the price compatible with its profit targets.

- ❑ Transfer Pricing Methods and Transfer Pricing Decision in Different Scenarios–

  i) Market Price – Transfer price is based on market price of goods or services similar to the ones transferred internally within divisions. The transfer can be recorded at the external

market price, adjusted for any costs that can be saved by internal transfer e.g. selling and distribution expenses, packaging cost.

*Advantages* – Unbiased, less–ambiguous, more objective divisional performances.

*Disadvantages* – Fluctuating market prices may not be suitable, non-availability of market prices in case of intermediate products, manipulative pricing strategies.

*Behavioural Consequences* - The supplying division will have to compete with the outside vendor that may lead to cost competitive operations. The purchasing division has more alternatives to choose from. However, the purchasing division must ensure that quality of the goods are also comparative.

Shared Profit Relative to Cost Method – Cost incurred by each division indicates the value it has added to the product cost, that is finally used to arrive at the selling price of the final product. The primary advantage of this method is that it allocates profit based on the proportion of value addition to the product in terms of cost.

ii) Cost Price Method – Cost based pricing models are based on the internal cost records of the company. They may be used when the management wants to benchmark performance with the cost targets set within the company or may be an alternative when market prices for the goods cannot be determined due to lack of comparable market.

*Advantages* – Benchmarking to budget, easy availability of information.

*Disadvantages* – Multiple ways of interpreting costs like variable cost, standard cost, full cost, find little incentive to lower the cost of production by adopting cost efficient methods since its passed on to the receiving department.

a) Variable Cost – Transfer price is recorded marginal cost required to produce one additional unit.

*Advantages* – useful when the supplying division has excess capacity, while the purchasing division enjoys the benefit of a lower price compared to the market.

*Disadvantages* – No fixed cost or mark-up is allowed to be charged to the purchasing division.

Behavioural Consequences – Profit evaluation is centralized at the entity level. Therefore, the supplying division may have little incentive to find measures for making cost efficient. Non- recovery of fixed costs would de-motivate the supplying division.

b) Standard Cost – Transfer price is recorded at a predetermined cost, which is based on budgets and certain assumptions regarding factors of productions like capacity utilization, labour hours etc.

*Advantages* – Performance evaluation against budgeted costs, variance analysis.

*Disadvantages* – Profit performance measurement is centralized.

*Behavioural Consequences* – Budgeted costs are generally based on historic records. Therefore, little incentive exists to make costs more efficient to improve profitability.

c) Full Cost – Transfer price is based on full product cost. It includes cost of production plus a share of other costs of the value chain like selling and distribution, general administrative expense, research and development etc.

*Advantages* – Supplying division will not show a loss.

*Disadvantages* – Since mark-up cannot be charged on internal transfers, the supplying division does not record any profit on these sales

d) Full cost plus Mark-up – Transfer price is based on full product cost plus a mark-up. Mark-up could be a percentage of cost or of capital employed.

*Advantages* – Full incentive to supplying division.

*Disadvantages* – The purchasing division may bear a share of the selling expenses although none was incurred for such internal sales.

*Behavioural Consequences* – The problem with using full cost as a basis for transfer pricing is that it distorts the company's cost structure while making decisions.

iii) Bargained or Negotiated Pricing – Managers of the purchasing and supplying divisions independently negotiate and arrive at a mutually agreeable transfer price.

*Advantages* – Autonomy to decide whether to purchase (or sell) from its sister unit or source then from (or to) external market.

*Disadvantages* – Requires sufficient external information to be available regarding the external market price, terms of trade etc. Internal cost information must also be shared in order to negotiate a reasonable price.

*Behavioural Consequences* – Provides for autonomy in decision making at the same time promotes goal congruence through efficient performance of the concerned divisions

❑ Divisional Conflict–

Dual Pricing – 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.

*Advantages* – Allows better evaluation of each division's performance, improves co-operation between divisions, promoting goal congruence and reduction of sub-optimization of resources.

*Disadvantages* – Complicate the records, artificial profits can be used only for internal evaluations

Two Part Pricing System –

Transfer Price

 =  Marginal Cost of Production + a Lump-Sum Charge (two part to pricing).

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 a lower rate compared to the market price.

❑ Transfer Pricing and Goal Congruence –

a) Minimum Transfer Price (determined by the supplying division)

= Additional Outlay Cost per unit + Opportunity Cost per unit.

*Additional Outlay Cost*

= Marginal Cost + Any Additional Incidental Costs incurred by the supplying division e.g. storage, transportation etc.

b) Maximum Transfer Price (determined by the purchasing division)

= Lower of Net Marginal Revenue and the External Buy-in Price

*Net Marginal Revenue*

= Marginal Revenue (i.e. Selling Price p.u.) – Marginal Cost to Purchasing Division

❑ Transfer Pricing Different Capacity Levels –

When the supplying division has excess capacity, the range for transfer pricing would be

a) Minimum Transfer Price

= Marginal Cost p.u.

b) Maximum Transfer Price

= Lower of Net Marginal Revenue and the External Buy-in Price

When the supplying division operates at full capacity, the range for transfer pricing would be

a) Minimum Transfer Price

= Marginal Cost p.u. + Opportunity Cost p.u.

b) Maximum Transfer Price

= Lower of Net Marginal Revenue and the External Buy-in Price

❑ Transfer Pricing Decision – Different Demand Levels: 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.

❑ International Transfer Pricing – Taxation, profit repatriation and transfer prices are critical considerations to the senior management of the multi-national companies. Multi-national organizations try to maximize profits by using transfer pricing as a tool to reduce the tax impact on earnings. Where, the supplying division is in a country with higher tax rate, the transfer price will be set lower in-order to reflect higher earnings (resulting from lower purchase cost) in the purchasing division, which has a lower tax rate. Likewise, supply from lower tax rate countries may be priced higher, in order to reflect higher earnings for that unit, thereby reducing the tax impact.

# TEST YOUR KNOWLEDGE- CASELET BASED MCQS

## Case-let on International Transfer Pricing

*Quicklink manufactures mobile phones at its plant in Karnataka, India. The company also has marketing divisions worldwide, one of which is in Paris, France. The division in France imports 50,000 mobile phones annually from the manufacturing plant in India. Given below is some information about the divisions in India and France:*

| | |
|---|---|
| *Number of mobile phones sold by Indian division to French division* | *50,000 units* |
| *Indian income tax rate on the Indian division's operating income* | *35%* |
| *French income tax rate on the French division's operating income* | *40%* |
| *Import duty rate paid by French division* | *15%* |
| *Full manufacturing cost per unit* | *₹12,000 per unit* |
| *Selling price (net of marketing and distribution costs) in France (in equivalent Indian Rupees)* | *₹18,000 per unit* |
| *Comparable market price based on similar imports in France (in equivalent Indian Rupees)* | *₹15,000 per unit* |

*The Indian and French tax authorities allow for transfer prices only that between full manufacturing cost ₹12,000 per unit and comparable market price ₹15,000 per unit based on similar imports of mobile phones in France. Import duty paid by the French division is based on the price at which the phones are transferred i.e., the transfer price. Import duty paid is a deductible expense for calculating income tax in France.*

### Requirements

**MCQ 1**

Calculate the after tax operating income of the Indian division when the transfer price is set at full manufacturing cost.

**Options**

a.  ₹60 crores

b.  ₹9.75 crores

c.  Nil (no taxable income)

d.  ₹12.60 crores

**Key** – c

**Reason –** Refer working– Step A5 of Method A. Option (a) ₹60 crore is the revenue of the Indian division under full manufacturing cost method. Option (b) ₹9.75 crore is the profit as per Method B Option (d) ₹12.60 crores is the overall profit of Quicklink as per Method A.

**MCQ 2**

Calculate the after tax operating income of the French division when the transfer price is set at full manufacturing cost.

**Options**

a.   ₹9 crores

b.   ₹21 crores

c.   Nil (no taxable income)

d.   ₹12.60 crores

**Key** – d

**Reason –** Refer working – Step B7 of Method A. Option (a) ₹9 crore is the import duty paid by the French division under Method A. Option (b) ₹21 crores is the operating profit before taxes of the French Division under Method A. Option (c) is the after tax Operating profit of the Indian division under Method A.

### MCQ 3

Calculate the after tax operating income of the Indian division when the transfer price is set at market price of comparable imports in France.

**Options**

a.   ₹15 crores

b.   ₹9.75 crores

c.   ₹ Nil (no taxable income)

d.   ₹2.25 crores

**Key** – b

**Reason –** Refer working– Step A5 of Method B. Option (a) ₹15 crores is the operating profit of the Indian division before taxes under Method B. Option (c) Nil is the operating profit of the Indian division under Method A. Option (d) ₹2.25 crore is the operating profit after tax of the French division under Method B.

### MCQ 4

Calculate the after tax operating income of the French division when the transfer price is set at market price of comparable imports in France.

**Options**

a.   ₹9.75 crores

b.   ₹3.75 crores

c.   ₹ 11.25 crores

d.   ₹2.25 crores

**Key** – d

**Reason –** Refer working– Step B7 of Method B. Option (a) ₹9.75 crores is the operating income after tax of the Indian division under Method B. Option (b) ₹3.75 crores is the operating income before tax of the French division under Method B. Option (c) ₹11.25 crores paid by the French division under Method B.

**MCQ 5**

Which method of transfer pricing is more beneficial for the company as a whole?

**Options**

a.  Transfer price at full manufacturing cost.

b.  Transfer price at market price of comparable imports in France.

**Key** – a

**Reason –** Refer to Step C of working. When transfer price is charged as per Method A at the full manufacturing cost, the operating income (after taxes) is ₹12.60 crores. When the transfer price is charged as per Method B at the market price of comparative imports in France, the operating income (after taxes) is 12 crores. Hence, it is more beneficial for Quciklink to set the transfer price at full manufacturing cost of ₹12,000 per unit (Method A).

**MCQ 6**

Assume that the Indian division is charging the French division full manufacturing cost of ₹12,000 per unit. If the manager of the Indian division wants to increase the transfer price to ₹12,001 per unit, that is transfer price is proposed to be increased by ₹1, what will be the impact on the income tax to be paid by the Indian division in India?

**Options**

a.  Increase in income tax payable in India by ₹0.35 per ₹1 increase in transfer price.

b.  Decrease in income tax payable in India by ₹0.35 per ₹1 increase in transfer price.

c.  No impact in income tax payable in India.

**Key** – a

**Reason –** Increase in income tax payable in India by ₹0.35 per ₹1 increase in transfer price. Refer to Step 1 in the explanation table.

**MCQ 7**

Assume that the Indian division is charging the French division full manufacturing cost of ₹12,000 per unit. If the manager of the Indian division wants to increase the transfer price to ₹12,001 per unit, that is transfer price is increased by ₹1, what will be the impact on the income tax and import duty to be paid by the French division in France?

**Options**

a.  Increase in income tax payable in France by ₹0.46 and increase in import duty payable in France by ₹0.15 per ₹1 increase in transfer price.

b.  Decrease in income tax payable in France by ₹0.46 and increase in import duty payable in France by ₹0.15 per ₹1 increase in transfer price.

c.  Increase in income tax payable in France by ₹0.46 and decrease in import duty payable in France by ₹0.15 per ₹1 increase in transfer price.

d.  Decrease in income tax payable in France by ₹0.46 and decrease in import duty payable in France by ₹0.15 per ₹1 increase in transfer price.

**Key** – b

**Reason –** Decrease in income tax payable in France by ₹0.46 and increase in import duty payable in France by ₹0.15 per ₹1 increase in transfer price. Refer to Step 2 and 3 in the explanation table.

### MCQ 8

Assume that the Indian division is charging the French division full manufacturing cost of ₹12,000 per unit. If the manager of the Indian division wants to increase the transfer price to ₹12,001 per unit, that is transfer price is proposed to be increased by ₹1. What will be the impact on the overall profits of Quicklink per ₹1 increase in transfer price?

**Options**

a.  Decrease in overall profits by ₹0.04 per ₹1 increase in transfer price.

b.  Increase in overall profits by ₹0.04 per ₹1 increase in transfer price.

c.  Increase in overall profits by ₹1 per ₹1 increase in transfer price.

d.  No impact on the overall profits of Quicklink.

**Key** – a

**Reason –** Decrease in overall profits by ₹0.04 per ₹1 increase in transfer price. Refer to Step 4 in the explanation table.

### MCQ 9

Assume that the Indian division is charging the French division full manufacturing cost of ₹12,000 per unit. The manager of the Indian division wants to increase the transfer price to ₹13,000 per unit, that is transfer price is proposed to be increased by ₹1,000 per unit. What will be the impact on the overall profits of Quicklink for the 50,000 mobile phones transferred from India to France? Please use your answers to Questions 6, 7 and 8 for your analysis.

**Options**

a.  Decrease in overall profits by ₹20,00,000

b.  Increase in overall profits by ₹20,00,000

c.  Increase in overall profits by ₹50,00,000

d.  No impact on the overall profits of the Quicklink

**Key** – a

**Reason –** Decrease in overall profits by ₹20,00,000. Refer to Step 5 in the explanation table.

### MCQ 10

Based on your analysis of questions 6 to 9, should the Indian division increase the transfer price to ₹13,000 per unit that is ₹1,000 per unit above the full manufacturing cost of ₹12,000 per unit?

**Options**

a.  Yes

b.  No

**Key** – b

**Reason –** If the Indian division increases the the transfer price from ₹12,000 per unit to ₹13,000 per unit and transfers 50,000 units to the French division, the overall profits will decrease by ₹20,00,000. Refer to Step 5 in the explanation table. Therefore, the Indian division should not increase the transfer pricing rate.

**Descriptive Question 1**

**Advise on behavioural consequences based on your findings in Questions 6 to 9.**

**Answer-** *Observation:* The income tax rate in India is 35% as compared to the income tax rate in France at 40%. Hence, on first glance it might seem attractive to increase the transfer price from ₹12,000 per unit to ₹13,000 per unit. In India this increase in transfer price of ₹1,000 per unit is taxed at 35%. In France the procurement cost increases by ₹1,000. While it might seem beneficial at first glance, the impact of import duty of 15% on this additional procurement cost of ₹1,000 negates the benefit.

The most optimal transfer price in the above case of Quicklink is the full manufacturing cost of ₹12,000 per unit where the overall company profit is maximum at ₹12.60 crores.

*Behavioural Consequence:* When the transfer price is at full manufacturing cost of ₹12,000 per unit, the Indian division does not show any profit in its financials. The net operating income after taxes is nil. The manager of the Indian division may want to charge above the full manufacturing cost of ₹12,000 per unit in order to start reflecting profits in the financials of the Indian division. However, the management should discourage this as the overall impact is negative. Performance evaluation of the Indian division may have to be done of a different basis other than financials.

*Conclusion-* Multinationals have to carefully understand the tax structure while they determine the transfer pricing models and the transfer price rate to be charged between two divisions in different countries.

**Workings**

|  |  | All figures in ₹ | All figures in ₹ |
|---|---|---|---|
| Sr. No. | Particulars | Method A Internal Transfer at Full manufacturing costs | Method B Internal Transfer at comparable market price of similar imports |
| A | **Indian Division** |  |  |
| A1 | Revenue<br>Method A: 50,000 units × ₹12,000 per unit<br>Method B: 50,000 units × ₹15,000 per unit | 60,00,00,000 | 75,00,00,000 |
| A2 | Full manufacturing costs<br>Method A and B: 50,000 units × 12,000 per unit | 60,00,00,000 | 60,00,00,000 |
| A3 | Division operating income (Step A3 = Step A1 - Step A2) | - | 15,00,00,000 |
| A4 | Division income tax (Step A3 × 35% income tax rate) | - | 5,25,00,000 |
| A5 | **Division after tax operating income** (Step A5 = Step A3 - Step A4) | **-** | **9,75,00,000** |
| B | **French Division** |  |  |

| B1 | Revenues<br>Method A and B: 50,000 units × ₹18,000 per unit | 90,00,00,000 | 90,00,00,000 |
|----|----|----|----|
| B2 | Transferred in costs (refer Step A2 above) | 60,00,00,000 | 75,00,00,000 |
| B3 | Import duty @15% of transferred in price (Step B2 × 15%) | 9,00,00,000 | 11,25,00,000 |
| B4 | Total division costs (Step B4 = Step B2 + Step B3) | 69,00,00,000 | 86,25,00,000 |
| B5 | Division operating income (Step B5 = Step B1 - Step B4) | 21,00,00,000 | 3,75,00,000 |
| B6 | Division income tax (Step B6= Step B5 × 40% income tax rate) | 8,40,00,000 | 1,50,00,000 |
| **B7** | **Division after tax operating income (Step B5 - Step B6)** | **12,60,00,000** | **2,25,00,000** |
|  |  |  |  |
| **C** | **Total (Overall) after tax income of the company** (Step A5 + Step B7) | **12,60,00,000** | **12,00,00,000** |

**Explanations for MCQs 6 to 10**

When the transfer price is increased by ₹1 per unit (from full manufacturing cost of ₹12,000 per unit to the proposed rate of ₹12,001 per unit)

| Sr. No. | Particulars | Impact per ₹1 increase in transfer price |
|----|----|----|
| 1. | Increase in transfer price by ₹1 will increase revenue in India by ₹ 1. Indian income tax will increase as revenue increases by ₹1.<br>Increase in Indian income tax per ₹1 increase in transfer price = ₹1×Indian income tax rate of 35% | ₹0.35 |
| 2. | Increase in transfer price by ₹1 will increase the French import duty as procurement cost for the French division will increase.<br>Increase in French import duty = ₹1 × 15% duty rate | ₹0.15 |
| 3 | Increase in transfer price by ₹1 will decrease French income tax (i) there will be an increase in procurement cost of ₹1 and (ii) consequently import duty will increase by ₹0.15 as explained in Step 2 above. Totally additional expense of ₹1.15 can be claimed against taxable profits.<br>Decrease in French income tax = ₹1.15 × 40% income tax rate. | ₹0.46 |
| 4 | Impact on overall profit of Quicklink on account of increase in transfer price by ₹1:<br>Step 1 – Increase in Indian income tax decreases profit by ₹0.35.<br>Step 2 – Increase in French import duty decreases profit by ₹0.15.<br>Step 3 – Decrease in French income tax increases profit by ₹0.46.<br>Step 4 – Impact on overall profit for every ₹1 increase in transfer price = Step 1 + Step 2 – Step 3 = ₹0.35 + ₹0.15 – ₹0.46 = ₹0.04 decrease in overall profit. | ₹0.04 decrease in overall profit |
| 5 | As per question 9, transfer price increased by ₹1,000 per unit for 50,000 units.<br>Transfer price between the divisions will increase by ₹1,000 per unit × 50,000 units = ₹50,00,000<br>Net impact on overall profits of Quicklink = Step 4 × ₹50,00,000<br>= ₹0.04 × ₹50,00,000 = ₹20,00,000 decrease in overall profit | ₹20,00,000 decrease in overall profit |

# TEST YOUR KNOWLEDGE

## Basic Concepts

1. G is the transferring division and R, the receiving division in a company. R has a demand for 20% of G's production capacity which has to be first met as per the company's policy. STATE with reason, which division, G or R enjoys more advantage in each of the following independent situations, assuming no inventory build-up.

| Sl. No. | G Transfers to R at Transfer Price equal to | G's Production level | External Demand | Division having more advantage | Reason |
|---|---|---|---|---|---|
| (i) | Full cost: No mark up | 60% | 40% | | |
| (ii) | Market Price | 80% | 60% | | |
| (iii) | Marginal Cost | 100% | 80% | | |
| (iv) | Market Price | 100% | 90% | | |

## Methods of Transfer Pricing

2. B Ltd. makes three products X, Y and Z in Divisions X, Y and Z respectively. The following information is given:

| | X | Y | Z |
|---|---|---|---|
| Direct Material (₹ / unit) (excluding material X for Divisions Y and Z) | 8 | 22 | 40 |
| Direct Labour (₹ / unit) | 4 | 6 | 8 |
| Variable Overhead (₹ / unit) | 2 | 2 | 2 |
| Selling price to outside customers (₹ / unit) | 25 | 65 | 90 |
| Existing capacity (no. of units) | 6,000 | 3,000 | 3,000 |
| Maximum external Market demand (no of units) | 5,000 | 5,500 | 5,000 |
| Additional fixed cost that would be incurred to install additional capacity (₹) | 45,000 | 9,000 | 23,100 |
| Maximum additional units that can be produced by additional capacity | 6,000 | 2,000 | 2,250 |

Y and Z need material X as their input. Material X is available in the market at ₹23 per unit. Defectives can be returned to suppliers at their cost. Division X supplies the material free from defects and hence is able to sell at ₹25 per unit. Each unit of Y and Z require one unit of X as input with slight modification.

If Y purchases from outside at ₹23 per unit, it has to incur ₹3 per unit as modification and inspection cost. If Y purchases from Division X, it has to incur, in addition to the transfer price, ₹2 per unit to modify it.

If Z gets the material from Division X, it can use it after incurring a modification cost, of ₹1 per unit. If Z buys material X from outside, it has to either inspect and modify it at its own shop floor at ₹5 per unit or use idle labour from Division X at ₹3 per unit. Division X will lend its idle labour as per Z's requirement even if Z purchases the material from outside.

The transfer prices are at the discretion of the Divisional Managers and will remain confidential. Assume no restriction on quantities of inter-division transfers or purchases.

*Required*

DISCUSS with relevant figures the best strategy for each division and for the company as a whole.

3.  Centurion Co. operates a Pulp Division that manufactures Wood Pulp for use in production of various paper goods. The following information are available:

| | ₹ |
|---|---|
| Selling Price | 210 |
| *Less:* Variable Expenses | 126 |
| Contribution | 84 |
| *Less:* Fixed Expenses (based on a capacity of 1,00,000 kgs per year) | 54 |
| Net Income | 30 |

Centurion Co. has just acquired a small company that manufacturers paper cartons. This company will be treated as a division of Centurion with full profit responsibility. The newly formed Carton Division is currently purchasing 10,000 kgs of pulp per year from supplier at a cost of ₹210 per kg less a 10% quantity discount. Centurion's President is anxious that the Carton Division begins purchasing its pulp from the Pulp Division if an acceptable transfer price can be worked out.

**Situation I**

If the Pulp Division is in a position to sell all of its pulp to outside customers at the normal price of ₹210 per kg, will the Managers of the Carton and Pulp Division agree to transfer 10,000 kgs of pulp next year at a determined price? EXPLAIN with reasons.

**Situation II**

Assuming that the Pulp Division is currently, selling only 60,000 kgs of pulp each year to outside customers at the stated price of ₹210 per kg will the Managers agree to a mutually acceptable transfer price for 10,000 kgs of pulp in next year? EXPLAIN with reasons.

**Situation III**

If the outside supplier of the Carton Division reduces its price to ₹177 per kg, will the Pulp Division meet this price? EXPLAIN. If the Pulp Division does not meet the price of ₹177 per kg, what will be the effects on profits of the company as a whole?

## Behavioural Consequences

4. 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 the lowest price at which the component 'Gex' could have been bought by Division Y was ₹52 per unit.

   Division X charges the 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 the 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.

   (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.

(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.

5. A manufacturer has two divisions, Division A and Division B. Division B produces components that are used by both Division A as well as external customers. Division A gets its entire requirement for the component from Division B.

The annual production capacity of Division B is 1,00,000 units. The division operates at full capacity, with no inventory at the beginning and end of the year. It sells its components to external customers at ₹4,000 per unit. Variable cost of production for the component is ₹2,750. Internally, it transfers it components to Division A factoring any opportunity cost in the form of lost sales. Total sales of Division B were ₹36 crores, of which sales to external customers was ₹20 crores.

As per company policy, demand from Division A has priority over external customers. This year, there was an additional demand from external customers for 18,000 components. However, since Division B operated at full capacity, this demand was not catered to.

*Required*

(i) ANALYZE the Sales in terms of ₹and units made by Division B to both external and internal customers.

(ii) RECOMMEND the transfer pricing range that would promote goal congruence between Divisions A and B.

(iii) DISCUSS the effect of changes in external demand on the transfer price for the company, assuming the current policy continues.

6. 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*

(i) 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.

(ii) 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.

(iii) 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?

(iv) 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.

7. **Business Model**

Rest Easy Company is a rapidly growing start-up in the technology sector. It develops customized ERP packages for clients across various business sectors. The business comprises primarily of two departments (1) consultant and (2) customer support. Consultant department has highly qualified professionals from management, accounting, and technology background, who approach clients as a team and work out solutions that meet their needs. Customer support personnel are in charge of IT implementation and provide support through telephone, e-mail or on-site. Currently, the strength of the consultant's department is 200 while that of customer support is 150.

Yash, the founder and CEO of the company, is very passionate about this business model. To deliver high-quality product solutions, he believes that his staff should be well-trained and up-to-date with developments in their professional fields. Therefore, Rest Easy provides periodic training to its staff in-house. All employees are expected to undergo 2 weeks of training annually. A training department has been set up with qualified trainers in various fields, who provide periodic training sessions to both Consultant and Customer Service departments. The training department has 5 trainers. Training sessions are aimed at providing skills that the executives need to provide better service to their clients. This in-house focus of high-quality delivery, is the key factor that Yash believes would set apart Rest Easy from its competitors.

In addition to delivering training sessions, trainers are responsible for developing training material for routine, on-going as well as specialized training sessions. They attend conferences, train the trainer sessions and subscribe to journals to keep themselves up-to-date with various developments that consultants and customer support executives need to be aware of.

At the beginning of each year, heads of consultant and customer service departments advise the training department on the expected number of training sessions that their staff would undertake. In special situations, where developments need to be communicated rapidly, extra sessions can also be conducted. Training department budgets are prepared based on these needs.

**Transfer Pricing - Training Cost Allocation**

Cost incurred by the training department is allocated to the consultant and customer service department based on the training sessions availed by both departments. A standard quote (transfer price) based on budgets is provided at the beginning of the year. At the end of the year, actual cost is allocated based on actual training sessions of each department.

Each of the user departments use the transfer price to prepare their individual budgets, that further gets built into their pricing models used for billing clients. One of the metric for manager appraisal is also the financial performance of their individual departments. Hence, managers of both consultant and customer service departments are very cost conscious.

Figures for budget and actual costs for 2023 of the training department are as follows:

Figures in ₹

| Cost Particulars | Budget | Actual |
|---|---|---|
| Salaries | 25,00,000 | 30,00,000 |
| Depreciation on Office Equipment | 2,00,000 | 5,00,000 |
| Software Licenses for Training Packages | 80,000 | 1,05,000 |
| Conference Travel for Train the Trainer Sessions | 10,000 | 15,000 |
| Telephone | 20,000 | 25,000 |
| Training Supplies | 50,000 | 60,000 |
| Trainee Lunch | 100,000 | 120,000 |
| Total Expenses | 29,60,000 | 38,25,000 |

Consultant and Customer service departments are charged based on the number of training sessions actually availed. Details of training sessions for each department are:

| Department | Budget | Actual |
|---|---|---|
| Consultant | 100 | 100 |
| Customer Service | 100 | 80 |
| Total | 200 | 180 |

**Problem of Goal Congruence**

In accordance with the above explanation, the training department quoted a rate of ₹14,800 per session based on the budgeted cost and budgeted training sessions. (Budgeted cost ₹29,60,000 for 200 training sessions). Actual cost per session is ₹21,250 (Actual cost ₹38,25,000 for 180 training sessions). Cost overrun of ₹6,450 per session, a jump of 44% from the original quote.

Consequently, a meeting was called that was attended by the managers of consultant, customer service and training departments, along with the CEO Yash.

The user departments were unhappy with the higher charge. Manager of the consultant department raised the following concerns:

(a) The market rate for similar trainings provided by external vendors was only ₹12,000 per session. He has accepted a higher transfer price of ₹14,800 per session only because the in-house training program was more customized towards Rest Easy's end-user-clients. However, if the department is actually going to be charged ₹ 21,250 per session, he would rather source the training to the outside vendor.

(b) Further, he pointed out that while his department had adhered to its commitment of 100 training sessions, the customer service department has availed of 20 lesser sessions than its commitment. Reviewing the cost structure of the training department, most of the expenses are fixed in nature. Therefore, when the transfer price is based on the actual cost and actual training sessions, the per session cost has increased because the customer service department did not undergo the entire 100 sessions. He questions, why he should bear a higher allocation of cost due to variance in actual and budgeted usage of training resources of the customer service department?

Manager of the customer service department explained that the variance of 20 training session is on account of the executives handling high-priority work pressure that did not allow them enough time to complete some of the training sessions. At the same time, she contended that she should not be charged for those 20 sessions for which no training was availed.

Manager of the training department explained that the ₹5,00,000 cost overrun on salary due to new hire of a trainer. The trainer's experience is very valuable to the company and hence to get her on board, the company had to offer a higher pay scale. Depreciation on office equipment was higher by ₹3,00,000 due to higher replacement cost of ageing equipment. A specialized software license resulted in an excess spend of ₹25,000. The manager argued that the rest of the expenses were normal increases which were not controllable.

Yash, the CEO, was understandably not happy with the cost over-run. Higher internal transfer price to the end user departments would affect employee morale. However, even though a cheaper option was available from an outside vendor, he could still foresee the value of investing in in-house training programs. Intangible benefits from these customized sessions, would definitely help the company's growth.

To conclude, he was not willing to shut down the training department. At the same time, he had to resolve the dispute resulting from internal transfer pricing in an amicable way. Like profits, teamwork is critical to success.

***Required***

(i)   IDENTIFY the threats to goal congruence due to internal transfer pricing.

(ii)  During the meeting, an alternate transfer pricing methodology based on two-part pricing system was formulated. Costs would be segregated into fixed and variable categories. A transfer price for each category would be arrived based on budgeted costs and budgeted usage. The standard rate for fixed cost will be applied to the budgeted training sessions and charged to the user departments. The standard rate for variable cost will be applied to the actual training sessions and charged to the user departments. Fixed cost would be defined as those that are not directly impacted by the number of training sessions. CALCULATE the transfer price to be charged to each department under this method.

(iii) EVALUATE how the two-part pricing price method of transfer pricing address the threats to goal congruence as identified in question 1?

## International Transfer Pricing

8.  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)

# ANSWERS/ SOLUTIONS

1.

| Sl. No. | Division Having More Advantage | Reason |
|---------|-------------------------------|--------|
| (i) | G | G is utilizing only 40% of production capacity by selling to 'External Market' which implies that G might have not been able to recover its full fixed costs. By transferring 20% of its production capacity to division R at full cost, G will be able to recover fixed costs components. |
| (ii) | G | G will not be losing any external market demand as it is within its production capacity. By transferring 20% of production capacity to division R at market price, G will earn extra contribution towards the fixed costs and profit. |
| (iii) | R | Here G is operating at 100% capacity level and external market demand is 80% only i.e. G is not losing any external market demand. But by transferring 20% of production capacity to R at marginal cost i.e. at variable cost, G may not be able to recover fixed cost part of total cost. On the other hand R will be able to get these units at marginal cost only. |
| (iv) | G | Though G is losing its 10% of external market demand but it would be able to earn the same revenue by transferring the goods to division R at market price. Moreover, G will be able to utilize 100% of its production capacity. |

2. Statement Showing "Contribution *per unit*"

(₹)

| Particulars | Division X | | | Division Y | | Division Z |
|-------------|------------|---|---|------------|----------|------------|
| | Sale to | Internal Transfer to | | Purchase from | Transfer from | Transfer from |
| | Outside | Y | Z | Outside | X | X |
| Selling Price | 25.00 | --- | --- | 65.00 | 65.00 | 90.00 |
| Transfer Price | --- | 24.00* | 25.00# | --- | --- | --- |
| Direct Material | 8.00 | 8.00 | 8.00 | 22.00 | 22.00 | 40.00 |

| (Excluding Material 'X') | | | | | | |
|---|---|---|---|---|---|---|
| Direct Labour | 4.00 | 4.00 | 4.00 | 6.00 | 6.00 | 8.00 |
| Variable Overhead | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Purchase Price 'X' | --- | --- | --- | 23.00 | --- | --- |
| Transfer Price 'X' | --- | --- | --- | --- | 24.00 | 25.00 |
| Modification Cost | --- | --- | --- | 3.00 | 2.00 | 1.00 |
| Contribution | 11.00 | 10.00 | 11.00 | 9.00 | 9.00 | 14.00 |

(*)  Division 'Y' will not pay Division 'X' anything more than ₹24, because at ₹24, it will incur additional cost of ₹2 per unit to modify, ₹23 + ₹3 = ₹26, the outside cost.

(#)  To purchase material X from outside is costly for Division 'Z' as after modification at own shop floor, cost of the same comes to Division 'Z' is ₹ 28 (₹23 + ₹5).

   If Division 'X' goes to utilize its full capacity in that case labour would not be available for modification to Department 'Z'.

   Accordingly Division 'Z' may purchase material X at ₹25 from Division 'X' i.e. market price to outsiders.

### Statement Showing "Internal Transfer Decision (units)"

| Particulars | | X | Y | Z |
|---|---|---|---|---|
| Existing Capacity | …(A) | 6,000 units | 3,000 units | 3,000 units |
| Maximum Capacity *that can be added* | …(B) | 6,000 units | 2,000 units | 2,250 units |
| Total Maximum *that can be produced* | …(C)=(A)+(B) | 12,000 units | 5,000 units | 5,250 units |
| Maximum External Demand | …(D) | 5,000 units | 5,500 units | 5,000 units |
| Balance | …(C) – (D) | 7,000 units | --- | 250 units |
| Internal Transfer to Other Divisions | | 5,000 units to Z* 2,000 units to Y | N.A. | N.A. |
| Internal Transfer from Other Divisions | | N.A. | 2,000 units transfer from X (material X) | 5,000 units transfer from X (material X) |

(*)  Division 'X' will supply its production to Division 'Z' first (after meeting its external requirement) as contribution from product Z is high.

### Statement Showing "Decision Whether to Expand or Not"

(₹)

| Particulars | X | Y | Z |
|---|---|---|---|
| Additional Fixed Cost on Expansion | 45,000 | 9,000 | 23,100 |
| Contribution that can be earned by expansion | 64,000 (4,000 units × ₹11 + 2,000 units × ₹10) | 18,000 (2,000 units × ₹9) | 28,000 (2,000* units × ₹14) |
| Net Benefit from Expansion | 19,000 | 9,000 | 4,900 |
| Decision | Expansion | Expansion | Expansion |

(*)  As maximum demand of product Z is 5,000 units which Division 'Z' first complete with existing capacity of 3,000 units. Balance 2,000 units from expansion.

**Statement Showing "Net Revenue Addition"**

(₹)

| Particulars | X | Y | Z | Total |
|---|---|---|---|---|
| Contribution – External Sales | 55,000 (5,000 units × ₹11) | 45,000 (5,000 units × ₹9) | 70,000 (5,000 units ×₹14) | 1,70,000 |
| Contribution – Internal Transfer | 75,000 (2,000 units × ₹10 + 5,000 units × ₹11) | --- | --- | 75,000 |
| Additional Fixed Cost | 45,000 | 9,000 | 23,100 | 77,100 |
| Net Revenue Addition | | | | 1,67,900 |

**Strategy for Company & Divisions**

(i)    Division 'X' will transfer maximum possible material to Division 'Z' as Division 'Z' is offering maximum transfer price to Division 'X'. At the same time Division 'Z' is fetching maximum contribution for the organisation so it is beneficial for both the Divisions as well as organisation as a whole.

(ii)   As shown above all the three Divisions are getting net benefit when they are taking decision to expand and hence, all the three Divisions should expand their activity by incurring additional fixed cost on expansion.

3.    **Situation I**

The lowest acceptable transfer price from the perspective of the selling division is given by the following formula:

$$\text{Transfer price} \geq \frac{\text{Variable cost}}{\text{per unit}} + \frac{\text{Total contribution margin on lost sales}}{\text{Number of units transferred}}$$

The Pulp Division has no idle capacity, so transfers from the Pulp Division to the Carton Division would cut directly into normal sales of pulp to outsiders. Since the costs are the same whether the pulp is transferred internally or sold to outsiders, the only relevant cost is the lost revenue of ₹210 per kg from the pulp that could be sold to outsiders. This is confirmed below:

$$\text{Transfer Price} \geq ₹126 + \frac{(₹210 - ₹126) \times 10,000}{10,000} = ₹210$$

Therefore, the Pulp Division will refuse to transfer at a price less than ₹210 per kg.

The Carton Division can buy pulp from an outside supplier for ₹210 per kg, less a 10% quantity discount of ₹21, or ₹189 per kg. Therefore, the Division would be unwilling to pay more than ₹189 per kg.

Transfer Price ≤ Cost of Buying from Outside Supplier = ₹189

The requirements of the two divisions are incompatible. The Carton Division won't pay more than ₹189 and the Pulp Division will not accept less than ₹210. Thus, there can be **no mutually agreeable transfer price and no transfer will take place**.

**Situation II**

The Pulp Division has idle capacity, so transfers from the Pulp Division to the Carton Division do not cut into normal sales of pulp to outsiders. In this case, the minimum price as far as the Carton Division is concerned is the variable cost per kg of ₹126. This is confirmed in the following calculation:

$$\text{Transfer price } \geq ₹126 + \frac{₹0}{10,000} = ₹126$$

The Carton Division can buy pulp from an outside supplier for ₹189 per kg and would be unwilling to pay more than that for pulp in an internal transfer. If the managers understand their own businesses and are cooperative, they should agree to a transfer and should settle on a transfer price within the range:

$$₹126 \leq \text{Transfer price} \leq ₹189$$

**Situation III**

Yes, ₹177 is a bona fide outside price. Even though ₹177 is less than the Pulp Division's ₹180 "full cost" per unit, it is within the range and therefore will provide some contribution to the Pulp Division.

If the Pulp Division does not meet the ₹177 price, it will lose ₹5,10,000 in potential profits.

| Price *per kg* | ₹177 |
|---|---|
| *Less*: Variable Costs | ₹126 |
| Contribution margin *per kg* | ₹51 |

10,000 kgs × ₹51 per kg = ₹5,10,000 potential increased profits.

This ₹5,10,000 in potential profits applies to the Pulp Division and to the company as a whole.

☞

> For situation III also considered that "the Pulp Division is currently selling only 60,000 kgs of pulp each year to outside customers".

4.  (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 | Division X | | | | Division Y | | Total |
|---|---|---|---|---|---|---|---|---|
| | | Per unit of Gex | External Sales | Internal Sales | Total Division X | Per unit of Gextin | External Sales | |
| | | | 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) The 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 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. 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, the transfer price range can be set between **₹46 - ₹47** per unit of Gex. Division X would then have to compete with the 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.

5.    (i)    **Sales Analysis of Division B**

Total annual capacity and actual production of Division B is 100,000 units of components. Zero inventory implies that sales for the year was also 100,000 units of components. Sales to external customers was ₹20 crores, at ₹4,000 per unit. Therefore, units sold to external customers would be 50,000 units this year (₹20 crores sales / ₹4,000 per unit sale price).

Therefore, internal sales can be derived to be 50,000 units for the year (annual sales 100,000 units less external sales 50,000 units). For the year, value of sales made to Division A is ₹16 crore (Division B's total sales of ₹36 crore less external sales of ₹20 crores).

Had there been no extra demand, opportunity cost for Division B would have been nil. Therefore, transfer price would only be the variable cost of ₹2,750 per unit of component, However, given in the problem, that there was excess demand for 18,000 units of components from external customers, that could not be met since Division B had to give priority to internal demand. Had these sales been made Division B would have earned ₹1,250 per unit contribution (Sale price ₹4,000 per unit less variable cost ₹2,750 per unit). This lost contribution of ₹1,250 per unit is the opportunity cost per unit for Division B. Due to company's policy of giving priority to internal demand, Division B lost a profit of ₹2.25 crore during the year. (18,000 units × contribution of ₹1,250 per unit).

Therefore, internal sales comprise of two parts:

32,000 units of components transferred at variable cost of ₹2,750. This amounts to ₹8.8 crores.

18,000 units of components transferred factoring any opportunity cost = variable cost + contribution per unit = external sale price = ₹4,000 per unit. This amounts to ₹7.2 crores.

Therefore, internal sales = ₹8.8 crores + ₹7.2 crores = ₹16 crores.

*Summarizing*

External sales are 50,000 units amounting to ₹20 crores annual sales value. Internal sales are 50,000 units amounting to ₹16 crores annual sales value. Transfer price for 32,000 units is at variable cost of ₹2,750 per unit while for 18,000 units is at external sales price of ₹4,000 per unit.

### (ii) Transfer Price Range for Divisions A and B

Division A procures its entire demand of 50,000 units from Division B. Out of this, 18,000 units at market price of ₹4,000 per unit while 32,000 units are procured at a lower rate of ₹2,750 per unit. Had Division A procured 32,000 units from the market, the additional cost of procurement would be ₹4 crores {(External price of ₹4,000 per unit *less* internal transfer price at variable cost of ₹2,750 per unit) ×32,000 units}. Only Division A currently enjoys this benefit of lower procurement cost. Financials of Division B show no profit from such internal transfers. This may skew the performance assessment of the divisions, if it is based primarily on financial metrics of each division. In order, promote goal congruence, some portion of this benefit can be shared with Division B.

Division B will at the minimum want to recover its variable cost of ₹2,750 per unit, while Division A will be ready to pay only up to external market price of ₹4,000 per unit. Therefore, transfer price range can be set between ₹2,750 - ₹4,000 per unit. Division A enjoys lower procurement rate while Division B financial reflect some benefit of transferring components internally to Division A.

### (iii) Impact of External Demand on Transfer Price

As per the company's transfer pricing policy, Division B gives priority to demand from Division A. The division has a production capacity of 100,000 units annually. If there is *no external market* for Division B's components, then transfer price for the entire internal transfer would be the variable cost of ₹2,750 per unit plus portion of the fixed cost (if any). This is the minimum cost that Division B would like to recover from Division A.

When there is an *external market*, transfer price would depend on whether Division B had to incur any opportunity in the form of lost sales. When total demand (internal and external) is within production capacity of 100,000 units, the entire demand can be met. There would be *no lost sales* for Division B, no opportunity cost. Therefore, transfer price for the entire internal transfer would be the variable cost of ₹2,750 per unit. This is the minimum cost that Division B would like to recover from Division A.

When there is an *external market*, such that total demand (internal and external) is more than production capacity of 100,000 units, due to priority given to internal transfer, some portion of the external demand might not be met. This would be *lost sales* for Division B, opportunity cost would be the contribution lost from such sales at ₹1,250 per unit. This opportunity cost would be passed onto Division A. As explained in part (ii) above, transfer price range will be from ₹2,750 - ₹4,000 per unit. More lost sales for Division B would keep the average transfer price higher towards ₹4,000 per unit. Lesser lost sales for Division B would keep the average transfer price towards the lower bound of ₹2,750 per unit. Therefore, the proportion of external demand that could not be catered to, would determine the average transfer price. Higher the demand from external customers would drive up the average transfer price within the company.

6. **(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. Further, 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 related 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 rate compared to the market price.

**7. (i)** Threats to goals congruence due to internal transfer pricing are:

(a) User groups, consulting and customer service department are concerned that training department is not controlling its costs. Since the entire actual costs gets allocated to the users, training department may not be managing its costs efficiently. Since the financials of user departments are affected, it may lead to conflict between the departments.

(b) Yash, the CEO is a firm believer of in-house training and its benefits. However, there are outside vendors that provide similar service at substantially reduced costs. Performance assessment of managers of consulting and customer service are based on their department's financial metrics. Higher internal transfer price for training would affect employee morale since they have no control over these allocated costs. However, their performance is being evaluated based on uncontrollable factors. This could lead to discontent among the managers. Alternatively, Yash may want to re-consider his strategy of in-house training. When suitable, training can be sourced to cheaper options available in the market, without compromising on quality.

(c)   Most costs of the training department are fixed in nature, as they need to be incurred irrespective of the number of training sessions. These costs are being allocated to the users based on actual training sessions. The budgeted target price is used by the user departments, to determine their billing model to Rest Easy's end user clients. Hence it is important that the budget transfer price is not very different from the actual transfer price charged at the end of the year.

In the given problem, internal transfer price has been based on a budget of 200 sessions. Here the customer service department does not adhere to its commitment of 100 training sessions, training sessions actually availed are only 80. Since costs are mostly fixed in nature, the actual cost per training session increases. This is then charged out to the consultant and customer service departments. Consequently, despite meeting its commitment, the consultant department bears a higher cost allocation due to variance in the usage of training resources. This can lead to friction between the user departments.

(ii)   By segregating the costs into fixed and variable components, Rest Easy is working out two-part pricing system for transfer price.

Two-Part Pricing System = Lump-Sum Charge + Marginal Cost

To segregate the costs into fixed and variable categories, the criteria is whether the costs change per additional training session. Accordingly, the classification of costs will be as below:

| Cost Particulars | Budget (₹) | Classification |
|---|---|---|
| Salaries | 25,00,000 | Fixed |
| Depreciation on Office Equipment | 2,00,000 | Fixed |
| Software Licenses for Training Packages | 80,000 | Fixed |
| Conference Travel for Train the Trainer Sessions | 10,000 | Fixed |
| Telephone | 20,000 | Fixed |
| Training Supplies | 50,000 | Variable |
| Trainee Lunch | 100,000 | Variable |
| Total Expenses | 29,60,000 | |

The lump-sum charge would be based on the fixed cost budget. Marginal cost would be based on the variable cost budget.

Total budget fixed expenses = ₹28,10,000 and total budget variable expenses = ₹150,000. Number of training sessions is 200, that is 100 each for consultant and customer service departments. Hence the fixed cost allocation rate would be ₹14,050 per session and variable cost allocation rate is ₹750 per session.

Transfer price to the consulting department = lump-sum charge + marginal cost

= (Standard Fixed Cost *per session* × Budgeted Training Sessions) + (Standard Variable Cost per Session × Actual Training Sessions)

= (₹14,050×100) + (₹750×100)

= ₹14,05,000 + 75,000

= ₹14,80,000.

Transfer price to the customer service department = lump-sum charge + marginal cost

= (Standard Fixed Cost *per session* × Budgeted Training Sessions) + (Standard Variable Cost *per session* × Actual Training Sessions)

= (₹14,050 × 100) + (₹750 × 80)

= ₹14,05,000 + ₹60,000

= ₹14,65,000.

Total transfer price allocation is ₹29,45,000 versus actual expenses of ₹38,25,000. Unallocated expenses are ₹880,000.

(iii) Evaluate how the two-part transfer pricing model would address the goal congruence issues listed in question 1?

(a) Since transfer prices are based on budgets, the training department would become more cost-conscious. As explained above, as per this transfer pricing method, unallocated expenses of ₹8,80,000 would have to be borne by the training department. As given in the problem, this variance is mainly on account of extra cost for the newly hired trainer and the higher depreciation expense. The department will be more cautious while taking future decisions. However, Yash the CEO must ensure that the quality of training is not compromised and remains in line with the company's strategic policy.

(b) Internal transfer price of ₹14,800 per session is still higher than the outside rate of ₹12,000 per session. Further decisions would be based on the company's strategic objective. At the same time, if the number of training sessions are expected to increase beyond the budget, this transfer pricing method charges the user department only a marginal cost of ₹750 per session. This is definitely lower that the external rate.

(c) Under this method, fixed expenses that form majority of the cost are allocated based on budgeted cost and budgeted usage. Variable expense are allocated based on actual training sessions. Hence, any variance in the utilization of training resources, does not impact the other user department.

Therefore, most of the goal congruence issues can be addressed through this methodology.

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

- *Repatriation 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.

# NOTES