

CA Final SPOM Set B – Strategic Cost & Performance Management
ICAI Module Questions Compilation

Chapter 12 - DIVISIONAL TRANSFER PRICING

Example 1 - 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		
$(5,000 \times 1,20,000 / 1,95,000)$	3,077	xxx
$(40,000 \times 1,80,000 / 2,60,000)$	xxx	27,692
Share of Packaging Division		
$(5,000 \times 75,000 / 1,95,000)$	1,923	xxx
$(40,000 \times 80,000 / 2,60,000)$	xxx	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 5,000carton (₹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.

Case Scenario 1

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'.

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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.

Illustration 1 – International Transfer Pricing

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

- 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.
- 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

- 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)

- Statement Showing "Operating Income"**

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

TEST YOUR KNOWLEDGE

Question 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 Rat 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%		

Solution

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.

Question 2 - Methods of Transfer Pricing

B Ltd. makes three products X, Y and Z in Divisions X, Y and Z respectively. The following info 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.

Solution**Statement Showing "Contribution per unit"**

Particulars	Division X			Division Y		Division Z
	Sale to Outside	Internal Transfer to		Purchase from Outside	Transfer from X	Transfer from X
		Y	Z			
Selling Price	25.00	---	---	65.00	65.00	90.00
Transfer Price	---	24.00*	25.00#	---	---	---
Direct Material (Excluding Material 'X')	8.00	8.00	8.00	22.00	22.00	40.00
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 it, ₹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	55,000	45,000	70,000	1,70,000
– External Sales	(5,000 units × ₹11)	(5,000 units × ₹9)	(5,000 units × ₹14)	
Contribution	75,000	---	---	75,000
– Internal Transfer	(2,000 units × ₹10 + 5,000 units × ₹11)			
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.

Question 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 manufactures 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?

Solution

Situation I

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

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

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:

$$\text{Transfer price} \geq \text{valuable cost per unit} + \frac{(\text{₹}210 - \text{₹}126) \times 10,000}{10,000} = 210 \text{ Rs.}$$

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.

$$\text{Transfer Price} \leq \text{Cost of Buying from Outside Supplier} = \text{₹}189$$

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.

Question 4 - Behavioural Consequences

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.

Solution

- 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 Overhead	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
2	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
2	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:

- 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).
- 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.
- 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.

- 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.

Question 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 its 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.

Solution

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.

Question 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.

Solution

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

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

Question 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:

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:

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:

- 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.
- 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

Solution

- (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

$$\begin{aligned}
 &= (\text{Standard Fixed Cost per session} \times \text{Budgeted Training Sessions}) + (\text{Standard Variable Cost per Session} \times \text{Actual Training Sessions}) \\
 &= (\text{₹}14,050 \times 100) + (\text{₹}750 \times 100) \\
 &= \text{₹}14,05,000 + 75,000 = \text{₹}14,80,000.
 \end{aligned}$$

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 than 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.

Question 8 - International Transfer Pricing

Standard Corporation Inc. (SCI) is a US based multinational company engaged in manufacturing and marketing of Printers and Scanners. It has subsidiaries spreading across the world which either manufactures or sales Printers and Scanners using the brand name of SCI.

The Indian subsidiary of the SCI buys an important component for the Printers and Scanners from the Chinese subsidiary of the same MNC group. The Indian subsidiary buys 1,50,000 units of components per annum from the Chinese subsidiary at CNY (¥) 30 per unit and pays a total custom duty of 29.5% of value of the components purchased.

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

The SCI is examining the proposal of the Japanese manufacturer and asked its Chinese 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

- 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.]
- 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).

Solution

- 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 $\{(1,50,000 \text{ units} \times ₹ 30) \times ₹ 9.80\}$	4,41,00,000
Add: Total Custom Duty $(₹ 4,41,00,000 \times 29.5\%)$	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 $(1,50,000 \text{ units} \times ₹ 320)$	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 $\{[(1,50,000 - 1,20,000 \text{ units}) \times ₹ (30 - 20)] \times ₹ 9.80\}$	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 gives a net benefit of ₹ 11,61,270.

(ii) The SCI needs to consider various other issues before reaching 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.