

TRANSFER PRICING

Question 1

Tripod Ltd. has three divisions - X, Y and Z, which make products X, Y and Z respectively. For division Y, the only direct material is product X and for Z, the only direct material is product Y. Division X purchases all its raw material from outside. Direct selling overhead, representing commission to external sales agents are avoided on all internal transfers. Division Y additionally incurs ₹ 10 per unit and ₹ 8 per unit on units delivered to external customers and Z respectively. Y also incurs ₹ 6 per unit picked up from X, whereas external suppliers supply at Y's factory at the stated price of ₹ 85 per unit.

Additional information is given below:

	Figures ₹/unit		
	X	Y	Z
Direct materials (external supplier rate)	40	85	135
Direct labour	30	50	45
Sales Agent's commission	15	15	10
Selling price in external market	110	170	240
Production capacity	20,000	30,000	40,000 units
External demand	14,000	26,000	42,000 units

You are required to discuss the range of negotiation for Managers X, Y and Z, for the number of units and the transfer price for internal transfers.
(11 Marks) (Nov. 2008)

Answer

Analysis of range of negotiation for Manager of Division X

(Figures in ₹)

Division X				
	Outside sales	Sales to Y (Range)		
Selling Price	110	70	-	79
(-) Commission	<u>15</u>	<u>-</u>		<u>-</u>
Net Selling Price	95	70	-	79
Variable Cost	<u>70</u>	<u>70</u>	-	<u>70</u>
Contribution per unit	25	0		9
Units	14,000	6,000		6,000
Total contribution				
(Units ´ Contribution per unit)	3,50,000	0		54,000

Analysis of Range of negotiation for Manager of Division Y

(Figures in ₹)

Division Y						
	Outside Sales			Sale to Z		
	From A	From outside		From A	From outside	
Price range	<u>70</u>	79	85	70	79	85
Add: Transport	<u>6</u>	<u>6</u>	<u>-</u>	<u>6</u>	<u>6</u>	<u>-</u>
	76	85	85	76	85	85
Add: Direct Labour	<u>50</u>	<u>50</u>	<u>50</u>	<u>50</u>	<u>50</u>	<u>50</u>
	126	135	135	126	135	135
Add: Delivery cost	<u>10</u>	<u>10</u>	<u>10</u>	<u>8</u>	<u>8</u>	<u>8</u>
	136	145	145	134	143	143

Add: Sales							
Commission	<u>15</u>	<u>15</u>	<u>15</u>		<u>-</u>	<u>-</u>	<u>-</u>
Total Cost	151	160	160	134	134	143	143
Selling Price	<u>170</u>	<u>170</u>	<u>170</u>	<u>134</u>	<u>135</u>	<u>135</u>	<u>135</u>
Contribution	19	10	10	<u>0</u>	<u>+1</u>	<u>(-) 8</u>	<u>(-) 8</u>

Range of Negotiations:

Manager of division X will sell 14,000 units outside at 110 ₹ per unit and earn contribution of ₹ 3.50 lakhs.

Excess capacity of 6,000 units can be offered to Y at a price between 70 (the variable manufacturing cost at X) and ₹ 95 (the maximum amount to equal outside contribution). But Y can get the material outside @ 85. So, y will not pay to X anything above (₹ 85 – 6) = ₹ 79 to match external available price.

X will be attracted to sell to Y only in the range of 71 – 79 ₹ per unit at a volume of 6,000 units.

At ₹ 70, X will be indifferent, but may offer to sell to Y to use idle capacity.

Z will not buy from Y at anything above 135. If X sells to Y at 70 per unit, Y can sell to Z at 134 and earn no contribution, only for surplus capacity and if units transferred by X to Y at ₹ 70 per unit.

	Y	Z
Provided X sells to Y at ₹ 70 per unit	Sell 4,000 units to Z at 134 (Indifferent) Sell 4,000 units to Z at 135 (willingly for a contribution of Re. 1)	Buy 4,000 units from y at 134 (attracted) Indifferent, since market price is also 135

For buying from X at 71 – 79 price range, Y will be interested in selling to Z only at prices 136 – 143, which will not interest Z.

Thus Y will sell to Z only if X sells to Y at ₹ 70 per unit and Y will supply to Z maximum 4,000 units.

Question 2

Bearings Ltd. makes three products, A, B and C in Divisions A, Band C respectively. The following information is given:

	A	B	C	
Direct Materials (excluding material A for Divisions B and C)	4	15	20	₹/u

Direct Labour	2	3	4	₹/u
Variable overhead	1	1	1	₹/u
Selling price to outside customers	15	40	50	₹/u
Existing Capacity	5,000	2,500	2,500	(No. of units)
Maximum External demand	3,750	5,000	4,000	(No. of units)
Additional fixed costs that would be incurred to install additional capacity	24,000	6,000	18,700	₹
Maximum Additional units that can be produced by additional capacity	5,000	1,250	2,250	(No. of units)

B and C need material A as their input. Material A is available outside at ₹ 15 per unit. Division A supplies the material free from defects. Each unit of B and C requires one unit of A as the input material.

If B purchases from outside, it has to pay ₹ 15 per unit. If B purchases from A, it has to incur in addition to the transfer price, ₹ 2 per unit as variable cost to modify it.

B has sufficient idle capacity to inspect its inputs without additional costs.

If C gets material from A, it can use it directly, but if it gets material from outside, which is at ₹ 15, it has to do one of the following:

(i) *Inspect it at its own shop floor at ₹ 3 per unit*

Or

(ii) *Get the supplier to supply inspected products and pay the supplier ₹ 2 p. u. as inspection charges.*

Or

(iii) *A has enough idle labour, which it can lend to C to inspect at Re. 1 p.u. even though C purchases from outside.*

A has to fix a uniform transfer price for both B and C. The transfer price will not be known to outsiders and is at the discretion of the Divisional Managers.

What is the best strategy for each division and the company as a whole?

(12 Marks)(June, 2009)

Answer

B will not pay A anything more than 13, because at 13, it will incur additional cost of ₹ 2/- to modify it, $13 + 2 = 15$, the outside cost.

	A		B	C
	Outside sale	Transfer to B & C		
Divisional variable cost of production	7	7	19	25
Transfer from A			13	13
Modification			2	
Total Variable Cost of production	7	7	34	38
Selling Price	15	13	40	50
Contribution	8	6	6	12

Option for C, Purchase all units from A @ 13: Any other option is costlier.

	A	B	C
Maximum external demand	3,750	5,000	4,000
Existing capacity	5,000	2,500	2,500
Maximum capacity that can be added	5,000	1,250	2,250
Total maximum that can be produced	10,000	3,750	4,750
Additional fixed cost on expansion	24,000	6,000	18,700
Units that must be sold/transfer to get this amount as contribution	$\frac{24,000}{6} = 4,000$	$\frac{6,000}{6} = 1,000$	$\frac{18,700}{6} = 1,558.33$
External demand not covered by existing capacity	-	2,500	1,500
Decision	Expand make 10,000 units 3,750 – outside 3,750 – B 2,500 – C	Expand make 2,500 + 1,250 = 3,750 units	Do not expand make only 2,500 units.

	A		B	C
	Outside sale	Transfer to B & C		
Units	3,750	3,750 + 2,500 = 6,250	3,750	2,500
Contribution / unit	8	6	6	12
Contribution (₹)	30,000	37,500	22,500	30,000

	67,500	22,500	30,000
Additional Fixed Cost	24,000	6,000	-
Net revenue addition	43,500	16,500	30,000

Individual strategy is the Company's best strategy.

Question 3

Optically Ltd. makes two kinds of products, P (lenses) and Q (swimming goggles) in divisions P and Q respectively. P is an input for Q and two units of P are needed to make one unit of Q.

The following data is given to you for a period :

	P ₹/u of P	Q ₹/u of Q
Direct Materials	20	25 (excluding P)
Direct Labour	30	35
Variable Overhead	10	20
External Demand (units)	3,000	3,000
Capacity (units)	7,000	2,500
Selling Price ₹/u (outside market)	100	410

If Q buys P from outside, it has the following costs:

For order quantity 2,499 or less ₹ 90 per unit for the entire quantity ordered.

For order quantity 2,500 – 5,000 ₹ 80 per unit for the entire quantity ordered.

For order quantity more than 5,000 ₹ 70 per unit for the entire quantity ordered.

You are required to:

(i) Evaluate the best strategies for Division P and Q.

(ii) Briefly explain the concept of goal congruence. (12 Marks)(Nov., 2009)

Answer

(i) Optical Ltd manufactures P (lenses) and Q (swimming goggles).

Division P has option to supply to Division Q or sell to outside market.

Division Q has option to buy from Division P or purchase from outside market.

However, both divisions have to work within their individual capacity.

Variable Cost for product P in Division P = Rs 60.

Variable cost for product Q in Division Q (excluding 2 Nos P's) = ₹ 80.

Division P has better market price of its product P than the market price offered to Q division.

For maximizing profit of the organization :	₹
P division should optimise its profit by selling maximum units to outside market.	
Contribution per unit for sale to outside for division P	40
Contribution per unit for Div Q as follows :	
Sale price - Variable cost (excluding lenses)	330
Max Contribution per unit (if procured from P div at its variable cost i.e ₹ 60)	210
Min Contribution per unit (if procured at ₹ 90 per unit from outside)	150
Contribution per unit at transfer price of ₹ 70 i.e minimum market price	190

Option 1 : Division Q buys 5001 units from market @ ₹ 70 and meets its capacity. Division P sells 3000 units to outside market @ ₹ 100

Sale / Transfer	Contrib. /unit	Contribution in thousand rupees		
		P Div	Q Div	Total
DivP : Sale of 3000 units to outside market @ Rs 100	40	120		120
DivQ: Sale of 2500 units with P from market @ Rs 70	190		475	475
Less : cost of rejection of one unit of product P			-0.07	-0.07
Total		120	474.93	594.93

Option 2 : Division P sells 3000 units to outside market, transfer 4000 units to div Q and Division Q buys 1000 units from outside market to work within the capacity

P Division agrees to a transfer price so that profitability of Q is not affected. To maintain the same profitability of Q, contribution required from 2000 units for Div Q is ₹ 400,000 i.e contribution per unit ₹ 200 i.e transfer price per unit of P is ₹ 65 per unit to make cost of lenses ₹ 130

Sale / Transfer	Contrib. /unit	Contribution in thousand rupees		
		P Div	Q Div	Total
Div P : Sale of 3000 units to outside market	40	120		120

Div P : Transfer of 4000 units to div Q at ₹ 65	5	20		20
Div Q : Sale of 2000 units with P from P div @ ₹ 65	200		400	400
Div Q : Sale of 500 units with P from market @ ₹ 90	150		75	75
Total		140	475	615

Under Option 1, both divisions worked dis-jointly without caring for capacity utilization resulting lower profitability of the organization.

Under Option 2, both divisions worked with mutual advantages for optimizing their individual profits and overall profit for the organization has gone up by effective utilization of capacity.

Product P from Division P fetches higher price from open market indicating good quality of product. Moreover, supply from P division is well assured in the long run which is the justification of establishment of two parallel divisions.

Hence, Option 2 is suggested.

- (ii) Division functioning as profit centers strive to achieve maximum divisional profits, either by internal transfers or from outside purchase. This may not match with the organisation's objective of maximum overall profits. Divisions may be commercial to advice overall objects objectives, where divisional decisions are in line with the overall best for the company, and this is goal congruence. Divisions at a disadvantage may be given due weightage while appraising their performance. Goal incongruence defeats the purpose of divisional profit centre system.