Transfer Pricing

Q1. Manuco ltd has been offered supplies of special ingredient Z by Helpo ltd which is part of the same group of companies. Helpo ltd is currently selling ingredient Z to external customer at £15 per kg. Helpo ltd bases its selling price on cost plus 25% profit mark up. Total costs has been estimated as 75%variable and 25% fixed.

Required: -

Discuss the transfer price/prices at which Helpo ltd should offer to transfer special ingredient Z to Manuco ltd in each of the following situations.

(a) Helpo ltd has an external market for all of its production of special ingredient Z at a selling price of £15 per kg. Internal transfers to Manuco ltd would enable to save £1.50 per kg of variable packing cost to be avoided.

(b) Conditions are as per (i) but Helpo ltd has spare capacity for 3000 kg os special ingredient Z for which no external market is available.

(c) Conditions are as per (ii) but Helpo ltd has an alternative use for some of its spare production capacity. This alternative use is equivalent to 2,000 kg of apecial ingredient Z and would earn a contribution of £6,000. **(10 marks)**

Answer:

a) Helpo ltd has unlimited external demand so it ill charge Mauco div at variable cost plus opportunity cost. In this situation that transferring internally would result in the Helpo division having a lost contribution of $6 per unit. The marginal cost of the transfer of services to the Helpo div is $7.50 as $1.5 can be saved due to lower packaging cost. So the transfer price should be $13.50 per unit.

b) In this situation, now Helpo div has spare capacity of 3000 kg where there will be no opportunity. So Helpo division will charge only variable cost from Mauco div. since internal transfer will lead to savings of $1.5 per unit so minimum transfer price for first 3000 kgs should be $7.50 per unit. Any quantity then onwards shall be charged at $13.50, as discussed in part (a) above.

c) In this situation, now Helpo division found some work which is equals to the production of 2000 kgs of ingredient Z. Helpo is still facing idle capacity equals to 1000 kgs. So for 1000 kg of idle capacity, it should charge $7.50 (as discussed in part b).

   Then for next 2,000 kgs, it should also charge opportunity cost along with the variable cost. Opportunity cost for 2000 kgs is $3 per unit so the minimum transfer price should be $10.50 per unit.

   Any quantity then onwards shall be charged at $13.50, as discussed in part (a) above.

Q2. The Information Technology division (IT) of the RJ Business Consulting Group provides consulting services to its clients as well as to other divisions within the group. Consultants always work in teams of two on every consulting day. Each consulting day is charged to external clients at £750 which represents cost plus 150% profit mark up. The total cost per consulting day has been estimated as being 80% variable and 20% fixed.

The director of the Human Resources (HR) division of RJ Business Consulting Group has requested the services of two teams of consultants from the IT division on five days per week for a period of 48 weeks, and has suggested that she meets with the director of the IT division in order to negotiate a transfer price. The director of the IT division has responded by stating that he is aware of the limitations of using negotiated transfer prices and intends to charge the HR division £750 per consulting day.

The IT division always uses 'state of the art' video-conferencing equipment on all internal consultations which would reduce the variable costs by £50 per consulting day. Note: this equipment can only be used when providing internal consultations.

Required:

(a) Calculate and discuss the transfer prices per consulting day at which the IT division should provide consulting services to the HR division in order to ensure that the profit of the RJ Business Consulting Group is maximised in each of the following situations:

(i) Every pair of consultants in the IT division is 100% utilised during the required 48-week period in providing consulting services to external clients, i.e. there is no spare capacity.

(ii) There is one team of consultants who, being free from other commitments, would be available to undertake the provision of services to the HR division during the required 48-week period. All other teams of consultants would be 100% utilised in providing consulting services to external clients.

(iii) A major client has offered to pay the IT division £264,000 for the services of two teams of consultants during the required 48-week period. (10 marks)

Q3. Division A, which is a part of the ACF Group, manufactures only one type of product, a Bit, which it sells to external customers and also to division C, another member of the group, ACF Group's policy is that divisions have the freedom to set transfer prices and choose their suppliers.
The ACF Group uses residual income (RI) to assess divisional performance and each year it sets each division a target RI. The group's cost of capital is 12% a year.

Division A

Budgeted information for the coming year is:

Maximum capacity	150,000 Bits
External sales	110,000 Bits
External selling price	$35 per bit
Variable cost	$22 per bit
Fixed cost	$1,080,000
Capital employed	$3,200,000
Targeted residual income	$180,000

Division C

Division C has found two other companies willing to supply Bits:
X could supply at $28 per Bit, but only for annual orders in excess of 50000 Bits.
Z could supply at $33 per Bit for any quantity ordered.

Required:-

Division C provisionally request a quotation of 60000 Bits from Division A for the coming year.
(i) Calculate the transfer price per bit that division A should quote in order to meet its residual income target. **(6 marks)**
(ii) Calculate the two prices division A would have to quote to division C, If It became group policy to quote transfer prices based on opportunity costs. **(4 marks)**

Q5. Bath Co is a company specialising in the manufacture and sale of baths. Each bath consists of a main unit plus a set of bath fittings. The company is split into two divisions, A and B. Division A manufactures the bath and Division B manufactures sets of bath fittings. Currently, all of Division A's sales are made externally. Division B, however, sells to Division A as well as to external customers. Both of the divisions are profit centres.

The following data is available for both divisions:

Division A	
Current selling price for each bath	$450
Costs per bath:	
Fittings from Division B	$75
Other materials from external suppliers	$200
Labour costs	$45
Annual fixed overheads	$7,440,000
Annual production and sales of baths (units)	80,000
Maximum annual market demand for baths (units)	80,000
Division B	
Current external selling price per set of fittings	$80
Current price for sales to Division A	$75
Costs per set of fittings:	
Materials	$5
Labour costs	$15
Annual fixed overheads	$4,400,000
Maximum annual production and sales of sets of fittings (units) (including internal and external sales)	200,000
Maximum annual external demand for sets of fittings (units)	180,000
Maximum annual internal demand for sets of fittings (units)	80,000

The transfer price charged by Division B to Division A was negotiated some years ago between the previous divisional managers, who have now both been replaced by new managers. Head Office only allows Division A to purchase its fittings from Division B, although the new manager of Division A believes that he could obtain fittings of the same quality and appearance for $65 per set, if he was given the autonomy to purchase from outside the company. Division B makes no cost savings from supplying internally to Division A rather than selling externally.

Required:

(a) Under the current transfer pricing system, prepare a profit statement showing the profit for each of the divisions and for Bath Co as a whole. Your sales and costs figures should be split into external sales and inter-divisional transfers, where appropriate. (6 marks)

(b) Head Office is considering changing the transfer pricing policy to ensure maximisation of company profits without demotivating either of the divisional managers. Division A will be given autonomy to buy from external suppliers and Division B to supply external customers in priority to supplying to Division A.

Calculate the maximum profit that could be earned by Bath Co if transfer pricing is optimised. (8 marks)

Q6. The Rotech group comprises two companies, W Co and C Co.

W Co is a trading company with two divisions: The Design division, which designs wind turbines and supplies the designs to customers under licences and the Gearbox division, which manufactures gearboxes for the car industry.

C Co manufactures components for gearboxes. It sells the components globally and also supplies W Co with components for its Gearbox manufacturing division.

The financial results for the two companies for the year ended 31 May 2014 are as follows:

	W Co		C Co
	Design division	Gearbox division	
	$'000	$'000	$'000
External sales	14,300	25,535	8,010
Sales to Gearbox division			7,550
			15,560
Cost of sales	(4,900)	(16,200)*	(5,280)
Administration costs	(3,400)	(4,200)	(2,600)
Distribution costs	–	(1,260)	(670)
Operating profit	6,000	3,875	7,010
Capital employed	23,540	32,320	82,975

* Includes cost of components purchased from C Co.

Required:

(a) Discuss the performance of C Co and each division of W Co, calculating and using the following three performance measures:

(i) Return on capital employed (ROCE)

(ii) Asset turnover

(iii) Operating profit margin

Note: There are 4·5 marks available for calculations and 5·5 marks available for discussion. (10 marks)

(b) C Co is currently working to full capacity. The Rotech group's policy is that group companies and divisions must always make internal sales first before selling outside the group. Similarly, purchases must be made from within the group wherever possible. However, the group divisions and companies are allowed to negotiate their own transfer prices without interference from Head Office.

C Co has always charged the same price to the Gearbox division as it does to its external customers. However, after being offered a 5% lower price for similar components from an external supplier, the manager of the Gearbox division feels strongly that the transfer price is too high and should be reduced.

C Co currently satisfies 60% of the external demand for its components. Its variable costs represent 40% of revenue.

Required:

Advise, using suitable calculations, the total transfer price or prices at which the components should be supplied to the Gearbox division from C Co. (10 marks)

The ideal transfer price is variable cost plus opportunity cost. In the given scenario, C company is satisfying 60% external demand. This means it can maximum sell $13,350,000 to external customer. Its maximum capacity is $15,560,000 which means that it will have a spare capacity of $2,210,000 whose only customer is gearbox division and it has no opportunity cost for that part of component. In this case, the minimum transfer price should be variable cost only which is $884,000 (as variable cost is 40% of sales).

On the other hand, gearbox division has an opportunity to buy same component from external supplier at market price less 5% less.

So, for the spare capacity of C company, the minimum transfer price should be $884,000 and maximum transfer price should be 2,099,000. Any price in between it will be equally good for company.

(7750-2210)

However, it seems unlikely that remaining demand equals to $5,340,000 of Gearbox division can be satisfied internally as gearbox division can buy this amount of component from market at $5,073,000 (market price less than 5%). Since C company has external demand available for that output so it will not be willing to supply internally at 5% less cost. So, transfer is unlikely to take place.

It is also in the benefit of group that transfer of remaining output should not take place. If both divisions perform transactions externally then Gearbox div will bring benefit to the company in the form of 5% saving and C Company will bring benefit to the company in the form of market price of component.

Q7. Mobe Co manufactures electronic mobility scooters. The company is split into two divisions: the scooter division (Division S) and the motor division (Division M). Division M supplies electronic motors to both Division S and to external customers. The two divisions run as autonomously as possible, subject to the group's current policy that Division M must make internal sales first before selling outside the group; and that Division S must always buy its motors from Division M. However, this company policy, together with the transfer price which Division M charges Division S, is currently under review. Details of the two divisions are given below.

Division S
Division S's budget for the coming year shows that 35,000 electronic motors will be needed. An external supplier could supply these to Division S for $800 each.

Division M
Division M has the capacity to produce a total of 60,000 electronic motors per year. Details of Division M's budget, which has just been prepared for the forthcoming year, are as follows:

Budgeted sales volume (units)	60,000
Selling price per unit for external sales of motors	$850
Variable costs per unit for external sales of motors	$770

The variable cost per unit for motors sold to Division S is $30 per unit lower due to cost savings on distribution and packaging.
Maximum external demand for the motors is 30,000 units per year.
Required:
Assuming that the group's current policy could be changed, advise, using suitable calculations, the number of motors which Division M should supply to Division S in order to maximise group profits. Recommend the transfer price or prices at which these internal sales should take place.
(10 marks)

Q8. The Better Agriculture Group (BAG), which has a divisional structure, produces a range of products for the farming industry. Divisions B and C are two of its divisions. Division B sells a fertiliser product (BF) to customers external to BAG. Division C produces a chemical (CC) which it could transfer to Division B for use in the manufacture of its product BF. However, Division C could also sell some of its output of chemical CC to external customers of BAG.

An independent external supplier to The Better Agriculture Group has offered to supply Division B with a chemical which is equivalent to component CC. The independent supplier has a maximum spare capacity of 60,000 kilograms of the chemical which it is willing to make available (in total or in part) to Division B at a special price of $55 per kilogram.

Forecast information for the forthcoming period is as follows:

Division B:

Production and sales of 360,000 litres of BF at a selling price of $120 per litre.
Variable conversion costs of BF will amount to $15 per litre.
Fixed costs are estimated at $18,000,000.
Chemical (CC) is used at the rate of 1 kilogram of CC per 4 litres of product BF.

Division C:

Total production capacity of 100,000 kilograms of chemical CC.
Variable costs will be $50 per kilogram of CC.
Fixed costs are estimated at $2,000,000.
Market research suggests that external customers of BAG are willing to take up sales of 40,000 kilograms of CC at a price of $105 per kilogram. The remaining 60,000 kilograms of CC could be transferred to Division B for use in product BF. Currently no other market external to BAG is available for the 60,000 kilograms of CC.

Required:

(a) (i) State the price/prices per kilogram at which Division C should offer to transfer chemical CC to Division B in order that the maximisation of BAG profit would occur if Division B management implement rational sourcing decisions based on purely financial grounds.

Note: you should explain the basis on which Division B would make its decision using the information available, incorporating details of all relevant calculations. (6 marks)

(ii) Division C is considering a decision to lower its selling price to customers external to the group to $95 per kilogram. If implemented, this decision is expected to increase sales to external customers to 70,000 kilograms.

Required:

For BOTH the current selling price of CC of $105 per kilogram and the proposed selling price of $95 per kilogram, prepare a detailed analysis of revenue, costs and net profits of BAG.

Note: in addition, comment on other considerations that should be taken into account before this selling price change is implemented. (6 marks)

The Portable Garage Co (PGC) is a company specialising in the manufacture and sale of a range of products for motorists. It is split into two divisions: the battery division (Division B) and the adaptor division (Division A). Division B sells one product – portable battery chargers for motorists which can be attached to a car's own battery and used to start up the engine when the car's own battery fails. Division A sells adaptors which are used by customers to charge mobile devices and laptops by attaching them to the car's internal power source.

Recently, Division B has upgraded its portable battery so it can also be used to rapidly charge mobile devices and laptops. The mobile device or laptop must be attached to the battery using a special adaptor which is supplied to the customer with the battery. Division B currently buys the adaptors from Division A, which also sells them externally to other companies.

The following data is available for both divisions:

Division B	
Selling price for each portable battery, including adaptor	$180
Costs per battery:	
Adaptor from Division A	$13
Other materials from external suppliers	$45
Labour costs	$35
Annual fixed overheads	$5,460,000
Annual production and sales of portable batteries (units)	150,000
Maximum annual market demand for portable batteries (units)	180,000
Division A	
Selling price per adaptor to Division B	$13
Selling price per adaptor to external customers	$15
Costs per adaptor:	
Materials	$3
Labour costs	$4
Annual fixed overheads	$2,200,000
Current annual production capacity and sales of adaptors – both internal and external sales (units)	350,000
Maximum annual external demand for adaptors (units)	200,000

In addition to the materials and labour costs above, Division A incurs a variable cost of $1 per adaptor for all adaptors it sells externally.

Currently, Head Office's purchasing policy only allows Division B to purchase the adaptors from Division A but Division A has refused to sell Division B any more than the current level of adaptors it supplies to it.

The manager of Division B is unhappy. He has a special industry contact who he could buy the adaptors from at exactly the same price charged by Division A if he were given the autonomy to purchase from outside the group.

After discussions with both of the divisional managers and to ensure that the managers are not demotivated, Head Office has now agreed to change the purchasing policy to allow Division B to buy externally, provided that it optimises the profits of the group as a whole.

Required:

(a) Under the current transfer pricing system, prepare a profit statement showing the profit for each of the divisions and for The Portable Garage Co (PGC) as a whole. Your sales and costs figures should be split into external sales and inter-divisional transfers, where appropriate. (9 marks)

(b) Assuming that the new group purchasing policy will ensure the optimisation of group profits, calculate and discuss the number of adaptors which Division B should buy from Division A and the number of adaptors which Division A should sell to external customers.

Note: There are 3 marks available for calculations and 3 marks for discussion. (6 marks)

A manufacturing company, Man Co, has two divisions: Division L and Division M. Both divisions make a single standardised product. Division L makes component L, which is supplied to both Division M and external customers. Division M makes product M using one unit of component L and other materials. It then sells the completed product M to external customers. To date, Division M has always bought component L from Division L.

The following information is available:

	Component L $	Product M $
Selling price	40	96
Direct materials:		
Component L		(40)
Other	(12)	(17)
Direct labour	(6)	(9)
Variable overheads	(2)	(3)
Selling and distribution costs	(4)	(1)
Contribution per unit before fixed costs	16	26
Annual fixed costs	$500,000	$200,000
Annual external demand (units)	160,000	120,000
Capacity of plant	300,000	130,000

Division L charges the same price for component L to both Division M and external customers. However, it does not incur the selling and distribution costs when transferring internally.

Division M has just been approached by a new supplier who has offered to supply it with component L for $37 per unit. Prior to this offer, the cheapest price which Division M could have bought component L for from outside the group was $42 per unit.

It is head office policy to let the divisions operate autonomously without interference at all.

Required:

(a) Calculate the incremental profit/(loss) per component for the group if Division M accepts the new supplier's offer and recommend how many components Division L should sell to Division M if group profits are to be maximised. (3 marks)

(b) Using the quantities calculated in (a) and the current transfer price, calculate the total annual profits of each division and the group as a whole. (6 marks)

(c) Discuss the problems which will arise if the transfer price remains unchanged and advise the divisions on a suitable alternative transfer price for component L. (6 marks)

(15 marks)