

The Institute of Finance Management
Accounting and Finance Department
Tutorial Questions
Measuring of Relevant Costs and Revenue
BACC 3 and BAIT 3
Instructor: Dr Zawadi Ally

QUESTION 1

The managing director of BM Co, a small business, is considering undertaking a one-off contract and has asked his inexperienced accountant to advise on what costs are likely to be incurred so that he can price at a profit. The following schedule has been prepared:

Costs for special order

	Notes	Shs
Direct wages	1	28,500,000
Supervisor costs	2	11,500,000
General overheads	3	4,000,000
Machine depreciation	4	2,300,000
Machine overheads	5	18,000,000
Materials	6	<u>34,000,000</u>
		<u>98,300,000</u>

Notes:

1. Direct wages comprise the wages of two employees, particularly skilled in the labour process for this job, who could be transferred from another department to undertake work on the special order. They are fully occupied in their usual department and sub-contracting staff would have to be bought-in to undertake the work left behind. Subcontracting costs would be Shs 32,000,000 for the period of the work. Different subcontractors who are skilled in the special-order techniques are available to work on the special order and their costs would amount to Shs 31,300,000.
2. A supervisor would have to work on the special order. The cost of Shs 11,500,000 is comprised of Shs 8,000,000 normal payments plus Shs 3,500,000 additional bonus for working on the special order. Normal payments refer to the fixed salary of the supervisor. In addition, the supervisor would lose incentive payments in his normal work amounting to Shs 2,500,000. It is not anticipated that any replacement costs relating to the supervisor's work on other jobs would arise.
3. General overheads comprise an apportionment of Shs 3,000,000 plus an estimate of shs 1,000,000 incremental overheads.
4. Machine depreciation represents the normal period cost based on the duration of the contract. It is anticipated that Shs 500,000 will be incurred in additional machine maintenance costs.
5. Machine overheads (for running costs such as electricity) are charged at Shs 3,000 per hour. It is estimated that 6000 hours will be needed for the special order. The machine has

4000 hours available capacity. The further 2000 hours required will mean an existing job is taken off the machine resulting in a lost contribution of Shs 2,000 per hour.

6. Materials represent the purchase costs of 7,500 kg bought some time ago. The materials are no longer used and are unlikely to be wanted in the future except on the special order. The complete Inventory of materials (amounting to 10,000 kg), or part thereof, could be sold for Shs 4200 per kg. The replacement cost of material used would be Shs 33,375,000. Because the business does not have adequate funds to finance the special order, a bank overdraft amounting to Shs 20,000,000 would be required for the project duration of three months. The overdraft would be repaid at the end of the period. The company uses a cost of capital of 20% to appraise projects. The bank's overdraft rate is 18%. The managing director has heard that, for special orders such as this, relevant costing should be used that also incorporates opportunity costs. She has approached you to create a revised costing schedule based on relevant costing principles.

REQUIRED:

- a) Briefly explain what is meant by opportunity cost
- b) Adjust the schedule prepared by the accountant to a relevant cost basis, incorporating appropriate opportunity costs.

QUESTION 2

Mr. Zonga has been asked to quote a price for a special contract. He has already prepared his tender but has asked you to review it for him. He has pointed out to you that he wants to quote the minimum price as he believes this will lead to more lucrative work in the future.

Mr Zonga's tender

	Shs
Material: A 2,000 kgs @ Shs10 per kg	20,000
B 1,000 kgs @ Shs15 per kg	15,000
C 500 kgs @ Shs40 per kg	20,000
D 50 litres @ Shs12 per litre	600
Labour: Skilled 1,000 hrs @ Shs25 per hr	25,000
Semiskilled 2,000 hrs @ Shs15 per hr	30,000
Unskilled, 500 hrs @ Shs10 per hr	5,000
Fixed overheads 3,500 hrs @ Shs12 per hr	42,000
Costs of preparing the tender:	
Mr. Zonga's time	1,000
Other expenses	500
Minimum profit (5% of total costs)	7,725
	<hr/>
Minimum tender price	166,825
	<hr/>

Other information

Material A

- 1,000 kgs of this material is in stock at a cost of Shs5 per kg.
- Mr. Zonga has no alternative use for his material and intends selling it for Shs2 per kg.

- However, if he sold any he would have to pay a fixed sum of Shs300 to cover delivery costs.
- The current purchase price is Shs10 per kg.

Material B

- There is plenty of Material B in stock and it cost Shs18 per kg.
- The current purchase price is Shs15 per kg.
- The material is constantly used by Mr. Zonga in his business.

Material C

- The total amount in stock of 500 kgs was bought for Shs 10,000 some time ago for another one off contract that never happened.
- Mr. Zonga is considering selling it for Shs 6,000 in total or using it as a substitute for another material, constantly used in normal production.
- If used in this latter manner it would save Shs 8,000 of the other material.
- Current purchase price is Shs 40 per kg.

Material D

- There are 100 litres of this material in stock.
- It is dangerous and if not used in this contract will have to be disposed of at a cost to Mr. Zonga of Shs 50 per litre.
- The current purchase price is Shs 12 per litre.

Skilled labour

- Mr. Zonga only hires skilled labour when he needs it.
- Shs 25 per hour is the current hourly rate.

Semi-Skilled labour

- Mr. Zonga has a workforce of 50 semiskilled labourers who are currently not fully utilized.
- They are on annual contracts and the number of spare hours currently available for this project is 1,500. Any hours in excess of this will have to be paid for at time and a half.
- The normal hourly rate is Shs15 per hour.

Unskilled labour

- These are currently fully employed by Mr. Zonga on jobs where they produce a contribution of Shs 2 per unskilled labour hour.
- Their current rate is Shs10 per hour, although extra could be hired at Shs 20 an hour if necessary.

Fixed overheads

This is considered by Mr. Zonga to be an accurate estimate of the hourly rate based on his existing production

Costs of preparing the tender

- Mr. Zonga has spent 10 hours working on this project at Shs 100 per hour, which he believes is his charge out rate.
- Other expenses include the cost of travel and research spent by Mr. Zonga on the project

Profit

This is Mr. Zonga's minimum profit margin which he believes is necessary to cover 'general day today expenses of running a business'.

REQUIRED:

Calculate and explain for Mr. Zonga what you believe the minimum tender price should be

QUESTION 3

Moro Co has been asked to quote a price for a one-off contract. The company's management accountant has asked for your advice on the relevant costs for the contract. The following information is available:

Materials

The contract requires 3,000 kg of material XK, which is a material used regularly by the company in other production. The company has 2,000 kg of material XK currently in stock that had been purchased last month for a total cost of Shs 19,600,000. Since then the price per kilogram for material XK has increased by 5%.

The contract also requires 200 kg of material XL. There are 250 kg of material XL in stock, which are not required for normal production. This material originally cost a total of Shs 3,125,000. If not used on this contract, the stock of material XL would be sold for Shs 11,000 per kg.

Labour

The contract requires 800 hours of skilled labour. Skilled labour is paid Shs 9,500 per hour. There is a shortage of skilled labour and all the available skilled labour is fully employed in the company in the manufacture of product BM.

The following information relates to product BM:

	Shs per unit	Shs per unit
Selling price		100,000
<i>Less</i>		
Skilled labour	38,000	
Other variable costs	<u>22,000</u>	
		<u>(60,000)</u>
		<u>40,000</u>

REQUIRED:

- a) Prepare calculations showing the total relevant costs for making a decision about the contract in respect of the following cost elements:
- (i) Materials XK and XL; and
 - (ii) Skilled labour.

b) Explain how you would decide which overhead costs would be relevant in the financial appraisal of the contract

QUESTION 4

The Telephone Co (T Co) is a company specializing in the provision of telephone systems for commercial clients. There are two parts to the business:

- installing telephone systems in businesses, either first time installations or replacement installations;
- supporting the telephone systems with annually renewable maintenance contracts.

T Co has been approached by a potential customer, Push Co, who wants to install a telephone system in new offices it is opening. Whilst the job is not a particularly large one, T Co is hopeful of future business in the form of replacement systems and support contracts for Push Co. T Co is therefore keen to quote a competitive price for the job. The following information should be considered:

1. One of the company's salesmen has already been to visit Push Co, to give them a demonstration of the new system, together with a complimentary lunch, the costs of which totaled Shs 400,000
2. The installation is expected to take one week to complete and would require three engineers, each of whom is paid a monthly salary of Shs 4,000,000. The engineers have just had their annually renewable contract renewed with

T Co. One of the three engineers has spare capacity to complete the work, but the other two would have to be moved from contract X in order to complete this one. Contract X generates a contribution of Shs 5,000 per engineer hour.

There are no other engineers available to continue with Contract X if these two engineers are taken off the job.

It would mean that T Co would miss its contractual completion deadline on Contract X by one week. As a result,

T Co would have to pay a one-off penalty of Shs 500,000. Since there is no other work scheduled for their engineers in one week's time, it will not be a problem for them to complete Contract X at this point.

3. T Co's technical advisor would also need to dedicate eight hours of his time to the job. He is working at full capacity, so he would have to work overtime in order to do this. He is paid an hourly rate of Shs 40,000 and is paid for all overtime at a premium of 50% above his usual hourly rate.
4. Two visits would need to be made by the site inspector to approve the completed work. He is an independent contractor who is not employed by T Co, and charges Push Co directly for the work. His cost is Shs 200,000 for each visit made.
5. T Co's system trainer would need to spend one day at Push Co delivering training. He is paid a monthly salary of Shs 1,500,000 but also receives commission of Shs 125,000 for each day spent delivering training at a client's site.

6. 120 telephone handsets would need to be supplied to Push Co. The current cost of these is Shs 18,200 each, although T Co already has 80 handsets in inventory. These were bought at a price of Shs 16,800 each. The handsets are the most popular model on the market and frequently requested by T Co's customers.

7. Push Co would also need a computerized control system called 'Swipe 2'. The current market price of Swipe 2 is Shs 10,800,000, although T Co has an older version of the system, 'Swipe 1', in inventory, which could be modified at a cost of Shs 4,600,000. T Co paid Shs 5,400,000 for Swipe 1 when it ordered it in error two months ago and has no other use for it. The current market price of Swipe 1 is Shs 5,450,000, although if T Co tried to sell the one they have, it would be deemed to be 'used' and therefore only worth Shs 3,000,000.

8. 1,000 metres of cable would be required to wire up the system. The cable is used frequently by T Co and it has 200 metres in inventory, which cost Shs 1,200 per metre. The current market price for the cable is Shs 1,300 per metre.

9. You should assume that there are four weeks in each month and that the standard working week is 40 hours long.

REQUIRED:

(a) Prepare a cost statement, using relevant costing principles, showing the minimum cost that T Co should charge for the contract. Make DETAILED notes showing how each cost has been arrived at and EXPLAINING why each of the costs above has been included or excluded from your cost statement.

(b) Explain the relevant costing principles used in part (a) and explain the implications of the minimum price that has been calculated in relation to the final price agreed with Push Co.

QUESTION 5

A builder has been asked to quote for a job and has the following information available about the costs:

Items	Detail	Note	Shs
<i>Direct Materials</i>			
Bricks	200,000 at Shs100 per thousand		20,000
	200,000 at Shs120 per thousand	1	24,000
Other Materials		2	5,000
<i>Direct Labour</i>			
Skilled	3,200 hrs at Shs12 per hour	3	38,400
Unskilled	2,000 hrs at Shs6 per hour	4	12,000
<i>Other Costs</i>			
Hire of machine		5	3,500
Depreciation		6	2,000
General			
overheads	5,200 hrs at Shs1 per hour	7	5,200
Plans		8	<u>2,000</u>
Total Cost			112,100

Profit	9	22,420
Suggested Price		<u>134,520</u>

Notes:

1. The contract requires 400,000 bricks of this standard type. The builder has 200,000 already in stock and will need to buy 200,000. The 200,000 at Shs100 per 1,000 in the quote above were bought at that price earlier in the year. The current replacement cost for this type of brick is Shs 120 per 1,000. If the bricks are not used on this project the builder is confident that he will be able to use them later on in the year.
2. This is the purchase price of other materials that will be bought in as required.
3. The builder intends to work 800 hours of the skilled work himself and hire the rest in on an hourly basis at Shs12 per hour. If the builder does not take on this job he can either work for other builders at Shs12 per hour or complete urgently required work to his own house for which he has been quoted Shs 12,000 by another builder.
4. The builder has 4 unskilled labourers employed on a contract guaranteeing them 40 hours per week at Shs 6 per hour. They are currently idle and have spare time available to complete the job.
5. This is the estimated cost of hiring machine.
6. The job will take 20 weeks and the machine will not be used on any other job if this job is not taken on.
7. This represents the cost of the storage yard used by the builder. If this is not used it can be rented out to a competitor for the 20 week period at a rent of Shs500 per week.
8. This is the cost of drawing up the plans for the project. These were drawn up several weeks ago.
9. A mark up of 20% is added to all jobs.

REQUIRED:

- a) Explain how each item described above should be treated.
- b) Using relevant costing principles, calculate the lowest price that the builder could quote for the building work.

QUESTION 6

Bunge Products Ltd has been offered a contract which, if accepted would significantly increase next year's activity levels. The contract requires 20,000 kg of products X and specifies a contract price of Shs 10,000 per kg. The resources used in the production of each kg. of X include:

Labour – Grade 1	2 hours
Labour- Grade 2	6 hours
Material A	2 units
Material B	1 litre

Grade 1 labour is highly skilled and although it is currently under-utilized it is a company policy to continue to pay grade 1 labour in full. Acceptance of the contract would reduce the idle time of grade 1 labour

Grade 2 labour is unskilled and may be considered a variable cost. The costs to Bunge Product Ltd for each type of labour are:

Grade 1	Shs 400 per hour
Grade 2	Shs 200 per hour

The materials required to fulfill the contract would be drawn from materials already in stock. Material A is widely used within the company and usage for this contract will necessitate replacement. Material B was purchased to fulfill and expected order which was not received and if not used on this contract it will be sold. The various values and costs for Material A and Material B are:

	Material A Shs per unit	Material B Shs per litre
Original cost	800	3,000
Replacement cost	1,000	3,200
Net realizable value	900	2,500

A single recovery rate for fixed factory overheads is used throughout the firm. The overhead is recovered per productive labour hour. Initial estimated of next year's activity, which exclude the current contract, show fixed production overheads to be Shs 60,000,000 and productive labour hours of 300,000. Acceptance of the contract would increase fixed production overheads by Shs 22,800,000. Variable production overheads are estimated at Shs 300 per production labour hour.

Acceptance of the contract would be expected to encroach on the sales and production of another product, Y which is also made by Bunge Products Ltd. It is estimated that sales of Y would then decrease by 5,000 units in the next year only. However, this forecast reduction in sales of Y would enable attributable fixed factory overheads of Shs 5,800,000 to be avoided.

Price and costs information of Y is as follows

	Per unit
Selling Price	Shs 7,000
Labour – Grade 2	4 hours
Material- relevant	Shs 1,200
Variable costs	Shs 1,200

REQUIRED

Advise the management of Bunge Products the viability of the contract

QUESTION 7

Sinza construction Ltd has been asked to submit a quote for an extension of office block. The company is pleased to have this enquiry as a job has been cancelled recently and there is now spare capacity and some material in stock, which can be used in this enquiry. The details are as follows;

	Units Require	Units in Stock	Book value per unit (Shs)	Realizable value per Unit (Shs)	Replacement cost per unit (Shs)
Material XA	20,000	0	0	0	1,000

Material XB	10,000	16,000	2,000	1,800	2,100
Material XC	5,000	4,000	3,000	1,500	1,700
Material XD	2,500	2,000	4,000	5,200	5,500

	Skilled labour	unskilled labour
Labour required	3,000 hours	1,000 hours

Notes available

1. Material XB is used regularly in most job that the company undertakes
2. Material XC was purchased specifically for the cancelled job and is not likely to be used in any job in the near future.
3. Material XD was purchased for the cancelled job but could be used as a replacement material that currently cost Shs 6,000 per unit.
4. The skilled workers have at least 3,000 hours of spare capacity over the next month, which is the same time that it will take to build the extension block.
5. Unskilled labour can be hired daily at a rate of Shs 5,000 per hour.
6. Overhead costs are added to all jobs at rate of Shs 7,000 per hour worked. This includes both skilled and unskilled labour hours.
7. The plans and specifications for the cancelled job cost Shs 3,000,000 and the modifications plans will incur a further Shs 1,000,000

REQUIRED

Compute the minimum price that the company can quote for this job without making a loss.

QUESTION 8

Bunge computer is a company specialized in the production of lap tops which it sales to multiple customers across Tanzania. The lap tops gained a greater reputation in the music industries in Tanzania causing an alarm to the management to review its production process so as to match the demand levels.

The company's current machine was purchased three years ago when the company was awarded a lucrative deals of supplying 600,000 special purpose lap tops, each year, to a Nairobi Company at an agree price of Shs 4,500 each. It is the company's policy that such machine should be depreciated over its useful life of six years on a straight line basis with no anticipated salvage value. Three years have now passed and the present written down value of the equipment stands at Shs 90,000,000. The machine can produce 1,000,000 lap tops per annum the level that equates to the annual demand in the local as well as international market. Each lap top fetches a price of Shs 6,000 in the local market.

Management is considering replacing this machine with a new machine that will reduce the variable operating costs. The new machine, which will have an expected life of three years , is estimated to cost 20% more expensive than the original machine and will have no scrap value at the end of the three years

The variable operating costs of production are Shs 3,500 per unit of output for the old machine and Shs 2,700 per unit for the new machine. Fixed overheads which include depreciation are to be

allocated to the units at the rates of Shs 2,530 and Shs 2,572 for the old and new machine respectively. It is expected that both machines possess the same capacity. The current disposal or sale value of the old machine is estimated to be Shs 55,000,000. Management is guaranteed a certain percentage of profits as bonus each year and this was a result of good bargaining session with the Board of Directors of the company.

REQUIRED

- (a) Advise the company on the appropriate course of action to be pursued
- (b) For those cost items that you believe are irrelevant in the scenario above, indicate them stating precisely why you think are irrelevant for decision making under the given scenario
- (c) What factors other than those dealt with above should be considered in making this decision?

QUESTION 9

Car Components Inc ('CCI') manufactures and sells brake and suspension components used in the car industry. Some components are sold through garages and motor factors to the public but the bulk are sold direct to car manufacturers. In particular, CCI has provided components for many years to Victor Motors, its largest client, who takes 40% of CCI's output. Pricing has always been based on full production cost plus 25%.

Intense competition within the car industry has seen CCI's market share decline and last year it only operated at 70% capacity. CCI's clients have not been immune to industry pressure either and recently Victor Motors was bought out by a multinational manufacturer. The new owners have decided that the component contract would now be put out to tender each year and have made it clear that price, while not the only consideration, would be a major factor in deciding on the preferred supplier

The management accountant of CCI has put together the following cost schedule for the CCI contract for the next year:

		Shs'000'
Materials	Note 1	5,000
Labour	Note 2	2,000
Variable overheads		1,000
Fixed overheads	Note 3	<u>2,000</u>
		<u>10,000</u>

Note 1: There is currently Shs 500,000 of materials inventory. If not used on Victor Motor components this would be sold to a third party, but incur a net loss (after delivery charges are taken into account) of Shs100,000.

Note 2: Victor Motors components are highly specialized. If the contract was lost, then all of the current staff making Victor components would have to be made redundant. Redundancy costs re-estimated to be Shs 500,000 now or Shs 600,000 in one year's time.

Note 3: Fixed overheads consist of unavoidable companywide costs and depreciation. If the contract is lost then machinery would be sold for Shs 600,000 now or Shs 450,000 in one year.

REQUIRED:

- (a) Calculate the incremental cost of completing the Victor Motors contract for one more year and suggest a minimum tender price.
- (b) Discuss the factors that must be taken into consideration when bidding for the Victor contract.

QUESTION 10

Brown Ltd is a company which has in inventory some materials of type XY which cost Shs 150,000 but which are now obsolete and have a scrap value of only Shs 42,000. Other than selling the material for scrap there are only two alternative uses for them

Alternative 1

Converting the obsolete materials into a specialized product which would require the following additional work and materials

Material A	600 units
Material B	1,000 units
Direct labour:	
5,000 hours unskilled	
5,000 hours semiskilled	
5,000 hours highly skilled	15,000 hours
Extra selling and delivery expenses	Shs 54,000
Extra advertising	Shs 36,000

The conversion would produce 900 units of saleable product and these could be sold for Shs600 per unit. Material A is already in inventory and is widely used within the firm. Although present inventories together with orders already planned will be sufficient to facilitate normal activity, any extra material used by adopting this alternative will necessitate such materials being replaced immediately. Material B is also in inventory but it is unlikely that any additional supplies can be obtained for some considerable time because of an industrial dispute. At the present time material B is normally used in the production of product Z which sells at Shs780 per unit and incurs total variable cost (excluding material B) of Shs420 per unit. Each unit of product Z uses four units of material B.

The details of materials A and B are as follows

	Material A	Material B
	Shs	Shs
Acquisition cost at time of purchase	200 per unit	20 per unit
	170 per unit	36 per unit
Replacement cost	180 per unit	

Alternative 2

Adapting the obsolete materials for use as a substitute for a subassembly which is regularly used within the firm, details of the extra work and materials required are:

Material C

1,000 units

Direct labour:

4,000 hours unskilled

1,000 hours semiskilled

4,000 hours highly skilled

9,000 hours

1,200 units of the subassembly are regularly used per quarter at a cost of Shs 1,800 per unit. The adaptation of material XY would reduce the quantity of the subassembly purchased from outside the firm to 900 units for the next quarter only. However, as the volume purchased would be reduced some discount would be lost, and the price of those purchased from outside would increase to Shs 2,100 per unit for that quarter. Material C is not available externally but is manufactured by Brown Ltd. The 1,000 units required would be available from inventories but would be produced as extra production. The standard cost per unit of material C would be as follows:

	Shs
Direct labour, 6 hours unskilled labour	36
Raw materials	26
Variable overhead, 6 hours at Shs2	12
Fixed overhead, 6 hours at Shs6	36
	<hr/>
	110
	<hr/>

The wage rates and overhead recovery rates for Brown Ltd are:

Variable overhead	Shs2 per direct labour hour
Fixed overhead	Shs6 per direct labour hour
Unskilled labour	Shs6 per direct labour hour
Semi skilled labour	Shs8 per direct labour hour
Highly skilled labour	Shs10 per direct labour hour

The unskilled labour is employed on a casual basis and sufficient labour can be acquired to exactly meet the production requirements. Semiskilled labour is part of the permanent labour force but the company has temporary excess supply of this type of labour at the present time. Highly skilled labour is in short supply and cannot be increased significantly in the short term; This labour is presently engaged in meeting the demand for product L which requires 4 hours of highly skilled labour. The contribution from the sale of one unit of product L is Shs48.

REQUIRED:

For each of the alternatives 1 and 2, prepare a cost benefit Analysis based on a schedule of relevant costs. Your answer should include a conclusion as to whether the inventories of material XY should be sold, converted into a specialized product (alternative 1) or adapted for use as a substitute for a subassembly

(Alternative 2)