



Management Accounting

Final Examinations
Module F – Summer 2011

Reading time – 15 minutes

June 7, 2011
100 marks – 3 hours

- Q.1 Mubin Limited (ML) manufactures Alpha which consumes two units of raw material A and three units of raw material B having standard cost of Rs. 35 and Rs. 20 per unit respectively. One unit of Alpha requires 1.5 labour hours. The following information pertains to the quarter ended March 31, 2011:

	Budget	Actual
	-----Rupees-----	
Sales	8,250,000	8,745,000
Material consumed	3,900,000	4,464,460
Direct labour	2,700,000	3,041,920

Other related information is given below:

- (i) Sales in January and February were made at the budgeted price of Rs. 275 per unit. For the month of March, the company allowed a 10% discount which was not budgeted. As a result, the number of units sold in March 2011 exceeded the budget by 20%.
- (ii) Actual material input during the quarter were 63,900 units of A and 105,600 units of B.
- (iii) The suppliers of raw material had increased the prices by 4% with effect from February 1, 2011.
- (iv) As an incentive, the management had increased the wages by Rs. 6.0 per hour with effect from February 1, 2011. This increase was not budgeted.
- (v) The purchases and production were carried out evenly over the period.

Required:

- (a) Compute the following for the quarter ended March 31, 2011:
 - (i) sale price and volume variances;
 - (ii) material price, mix and yield variances; and
 - (iii) labour rate and efficiency variances.
- (b) Comment on the adverse variances giving possible reasons for the same and your suggestions to the management, if any. (20 marks)

- Q.2 Punjnad Juice Company is launching a new product. The annual capacity of this product is 24,000 units and per unit cost has been estimated as follows:

	Rupees
Material	80
Labour cost	30
Variable overheads	10
Fixed overheads	20
Depreciation	10
	150

The selling price would be Rs. 200 per unit. Selling expenses are estimated at Rs. 10 per unit. 80% of the selling expenses are considered variable. Projections related to the first two years are as follows:

	Year 1	Year 2
Production units	15,000	20,000
Sales units	14,000	18,000

Other related estimates are given below:

▪ Stock of raw material	3 months average consumption
▪ Stock of finished goods	To be valued at average cost on the basis of absorption costing
▪ Debtors	1 month's sales
▪ Creditors for supply of material	2 months' average purchases
▪ Creditors for variable and fixed overheads	1 month's average
▪ Bad debts	0.75%

Required:

Prepare a statement showing projected working capital requirements for both the years related to the new product. (15 marks)

- Q.3 ABC (Private) Limited operates a fast food chain and has 15 outlets all over Pakistan. The company's turnover for the year ending June 30, 2011 is estimated at Rs. 181 million and the annual fixed costs are estimated at Rs. 30 million. The analysis of sale has revealed the following:

Product	Sale price (Rs.)	Quantity wise sales ratio	Contribution margin as % of sale price
Burger	150	6	40
Fries	50	7	45
Cold drink	40	8	50
Ice-cream	80	3	60

The company has witnessed very little growth in turnover and profitability during the past two years. In order to increase the profitability, the management is considering the following options:

Option 1:

To introduce the following deals:

- **Deal 1** offering burger, fries and cold drink for Rs. 210
- **Deal 2** offering burger, fries, cold drink and ice-cream for Rs. 280

As a result, the total turnover is expected to increase by 25%. The ratio between sale of Deal 1 and Deal 2 would be 60% and 40% respectively. 70% of the revenues would be generated from the sale of deals and 30% from the sale of individual items in the existing ratio.

Option 2:

Under this option the price of all the products would be reduced by 20% to make the prices competitive in the market. In addition, home delivery would be allowed for orders of Rs. 250 and above. Home delivery would require additional fixed costs of Rs. 850,000 per annum and variable cost of Rs. 20 per delivery.

It is estimated that the above measures would increase the total sales revenue by 35% inclusive of sales through home delivery service which is estimated at Rs. 30 million. The average revenue per delivery is estimated at Rs. 600. All sales would increase in the existing ratio except that ice-cream would not be sold through home deliveries.

Required:

Evaluate each of the above options and give your recommendations.

(20 marks)

- Q.4 Khizr Limited (KL) owns a factory which produces specialized products whose demand is seasonal. Three machines of the same type, are installed in the factory which operate round the clock. During the past few years the capacity utilisation has been as follows:

▪ October to March	single machine at 80% capacity
▪ April to July	two machines at 90% capacity
▪ August and September	three machines at 100% capacity

In view of frequent disruptions in power supply, KL has decided to buy a power plant having a generation capacity of 5 megawatts. The power requirement of the factory is 4 megawatts when all the machines are operating at 100% capacity. The power consumption is 0.25 megawatts when all the machines are non-operational. The power consumed by the machines is directly proportional to their utilized capacity.

A utility company has offered to buy all the surplus power for a period of 5 years. It would require an interconnection structure which would be constructed at an estimated cost of Rs. 15 million. The utility company has agreed to reimburse the cost after five years. The bankers of KL have expressed their willingness to provide these funds at a cost of 16% per annum. Fuel cost is estimated at Rs. 24 million per month when the plant is running at 100% capacity. Other relevant costs are as follows:

	Rupees per month
Operational costs	1,500,000
Labour	250,000
Miscellaneous related costs	500,000

The cost of the power plant is Rs. 100 million with expected useful life of six years and scrap value of Rs. 4 million. KL uses straight line method to calculate depreciation. Presently KL pays approximately Rs. 180 million per annum to the utility company to purchase electricity for its own use.

Required:

Calculate the price per unit that should be offered to the utility company for sale of the surplus power, if KL desires to achieve a return (profit on electricity generation plus cost savings on own electricity consumption) of Rs. 60 million per annum. *(One megawatt of electricity produced throughout the year = $1000 \times 24 \text{ hours} \times 360 \text{ days} = 8,640,000 \text{ units}$. It may be assumed that 1 year has 360 days and each month has 30 days.)* (12 marks)

- Q.5 Ahram Limited manufactures an industrial product MRG. Its primary raw material is in the form of semi-completed units. Further processing is carried out in Department A after which the units meeting the quality control standards are transferred for processing in Department B.

There are three economical sources of primary raw material as shown below:

Supplier	Price	Freight-in	Maximum supplies as per agreement
	-----Rupees per unit-----		
FML – Pakistan	287.50	2.00	1.60 million
LMN – China	265.00	9.00	2.00 million
PQR – Singapore	280.00	5.00	3.00 million

Import duty and sales tax are payable on the import of raw material @ 26.5% of the C&F value. Sales tax is paid at 15% of C&F value plus import duty and is refundable. The percentage of defective units in local and imported raw material is 7% and 1% respectively. The defective raw material can be sold for Rs. 40 per unit.

Other relevant details are as follows:

	Department A	Department B
Annual capacity net of process losses	5 million units	4 million units
Normal process loss	10% of input	5% of output
Scrap value of units rejected after processing	Rs. 75 per unit	Rs. 125 per unit
Time required for each unit of output	18 minutes	12 minutes
Wage rate	Rs. 200/hour	Rs. 250/hour
Variable overheads	60% of labour cost	75% of labour cost

Fixed overheads are estimated at Rs. 10 million per annum. Fixed overheads are allocated to the departments on the basis of labour hours. The realizable value of scrap is deducted from the cost of goods manufactured.

Required:

Determine the priority in which the material is to be purchased and prepare a statement showing the department wise budgeted total and unit cost. *(Assume that there would be no opening or closing inventories)* (17 marks)

- Q.6 A company manufactures tables and chairs. The total time available during each month and the time required to manufacture each table and chair are as follows:

	Machine hours	Labour hours
Table	1.00	1.50
Chair	0.50	2.00
Available hours	715	2,250

The direct cost of operating the machines is Rs. 450 per hour. The labour costs Rs. 60 per hour. Details of material and other costs are as follows:

	Table	Chair
	----Rupees----	
Material	1,000	300
Variable overheads other than direct labour and machine costs	200	50
Applied fixed overhead	105	45

Sale price of each table and chair has been fixed at Rs. 2,300 and Rs. 900 respectively. The company has already signed a contract for supply of 40 tables and 150 chairs which needs to be supplied in July 2011. Apart from this contract, the pattern of demand suggests that each month, the company should manufacture:

- at least 100 tables; and
- at least 2 chairs per table.

Required:

- Construct a set of constraints in the form of inequalities, plot them on a graph and identify the feasible region.
- Determine the number of tables and chairs that should be produced in July 2011 to earn maximum profit. (16 marks)

(THE END)