



## Cost and Management Accounting

Q.1 Tulip Enterprises (TE) manufactures a product Alpha that requires two separate processes, A and B. Following information has been extracted from the cost records of **Process B** for the month of February 2019:

	Quantity Liters	Process A cost	Process B cost	
			Material	Conversion
			Rs. in '000	
Opening work-in-process – Process B (80% complete as to conversion)	10,000	1,500	600	400
Cost for the month:				
- Received from process A	90,000	14,000	-	-
- Added during process B	12,000	-	7,000	5,600
Closing work-in-process – Process B (70% complete as to conversion)	9,500	-	-	-

**Additional information:**

- Materials are added at start of the process.
- Normal loss is estimated at 5% of the input. Loss is determined at completion of the process. Loss of each liter results in a solid waste of 0.75 kg. During the month of February 2019, solid waste produced was 6,000 kg.
- Solid waste is sold for Rs. 170 per kg after incurring further cost of Rs. 20 per kg.
- TE uses weighted average method for valuation of inventory.

**Required:**

Prepare accounting entries to record the transactions of process B. (*Narrations to accounting entries are not required*)

(12)

Q.2 Lily (Private) Limited (LPL) has two factories. LPL manufactures a product Delta in its Quetta factory. One unit of Delta is assembled from three components P, Q and R which are produced in the Hub factory. Monthly demand of Delta is estimated at 5,000 units.

Following information is available in respect of each component:

	P	Q	R
Quantity required for one unit of Delta	2	2	3
Machine hours required for producing each component	4	3	5
<b>Cost of production:</b>	<b>----- Rupees -----</b>		
▪ Direct material	900	800	300
▪ Direct labour	270	250	240
▪ Factory overheads	500	700	280
▪ Allocated administrative overheads	40	30	50

Fixed factory overheads are charged at Rs. 20 per machine hour.

Production capacity at Hub factory is restricted to 100,000 machine hours per month. In order to meet the demand, LPL is considering to purchase P, Q and R from a vendor at Rs. 1,700, Rs. 1,800 and Rs. 870 per unit respectively.

**Required:**

Determine how LPL can optimise its profit in the above situation.

(11)

Q.3 Lotus Enterprises (LE) is engaged in trading of various locally manufactured products. Hope Limited (HL), a company incorporated outside Pakistan has offered to assist LE in establishing a manufacturing facility in Pakistan for producing its products. LE has gathered the following information in respect of HL’s offer:

- (i) The manufacturing facility will be set up on a land which was acquired by LE three years ago for Rs. 40 million. Market value of the land at the commencement of the project is estimated at Rs. 60 million. Cost of the manufacturing facility is estimated as under:

	Rs. in million
Factory building	30
Plant including its installation	100
Other fixed assets	10

- (ii) Sales for the first year of production is estimated at Rs. 500 million. It is expected that sales demand would increase by 5% in each subsequent year.
- (iii) Under the product licensing agreement, HL would be paid a royalty equal to 15% of sales.
- (iv) It is expected that cost of production in the first year of production would be 75% of sales including fixed costs of Rs. 50 million.
- (v) Additional working capital of Rs. 35 million would be required in the first year of production. Working capital requirement would increase by Rs. 5 million each year.
- (vi) Rate of inflation is estimated at 8% per annum with effect from 2<sup>nd</sup> year onward. It would affect revenues as well as all the costs (excluding depreciation).
- (vii) Factory building would be depreciated at 5% whereas plant and other fixed assets would be depreciated at 25% using reducing balance method. It is estimated that at the end of plant’s useful life of four years:
  - market value of the land would be Rs. 75 million; and
  - residual value of all the assets would be equal to their carrying value.
- (viii) Applicable tax rate is 30% and tax is payable in the year in which the liability arises.
- (ix) There would be no temporary or permanent timing difference between accounting profit and taxable income.
- (x) LE’s cost of capital is 15%.

**Required:**

Compute the net present value (NPV) of the project and advise whether it would be feasible to accept HL’s offer. *(Assume that except where stated otherwise, all cash flows would arise at the end of the year)*

(15)

Q.4 (a) On 1 January 2019, Marigold Enterprises (ME) purchased an option for Rs. 10,000 allowing ME to buy 5,000 shares of Aroma Limited (AL) at a price of Rs. 140 per share, during the next two months. On 12 February 2019, ME purchased the shares at the agreed price when the market value of AL's shares was Rs. 180 per share.

**Required:**

Briefly explain each of the following terms and relate each term to the above scenario, wherever possible:

- (i) ‘Call option’ and ‘Put option’ (2.5)
- (ii) ‘In the money’ and ‘Out the money’ (2.5)

- (b) Orchid Limited (OL) is a trading concern. It is planning to implement Economic Order Quantity model (EOQ) from 1 April 2019. OL deals in four products each of which is purchased from a different supplier. To compute EOQ for one of its products Beta, the following data has been gathered:

(i) **Actual data for the last year relating to Beta:**

▪ Annual sales	<b>Units</b>	72,000
▪ Safety stock	<b>Units</b>	2,000
▪ Transit losses as % of purchases		10%
▪ Average holding cost per month	<b>Rs.</b>	500,000
▪ Average holding cost per month per unit	<b>Rs.</b>	80
▪ Number of purchase orders issued for Beta		40

- (ii) Total cost of purchase department for the last year amounted to Rs. 4,500,000 which included fixed cost of Rs. 1,350,000. A total of 100 purchase orders were issued during the last year.

(iii) **Projections for the next year:**

▪ Increase in sales volume		25%
▪ Safety stock	<b>Units</b>	2,500
▪ Transit losses as % of purchases		6%
▪ Impact of inflation on all costs		10%

- (iv) Closing inventory (excluding safety stock) varies in line with the sales volume.

**Required:**

Calculate EOQ for Beta.

(07)

- Q.5 Daisy Limited (DL) manufactures and markets product Zee. DL uses standard absorption costing. Following information pertains to product Zee for the month of February 2019.

- (i) Data extracted from the budget for the month of February 2019:

Production	<b>Units</b>	27,000
<b>Cost of production:</b>		<b>Rs. in '000</b>
Direct material	<b>X: 16,000 kg @ Rs. 400 per kg</b>	6,400
	<b>Y: 14,000 kg @ Rs. 300 per kg</b>	4,200
Direct labour	<b>10,000 hours @ Rs. 220 per hour</b>	2,200
Factory overheads (including fixed overheads of Rs. 900,000)	<b>Rs. 250 per labour hour</b>	2,500

- (ii) Actual input ratio of X and Y was 55:45 respectively.  
 (iii) Direct materials are added at the beginning of the process. Actual process losses were 6% of the output. There is no change in the direct material prices during the month.  
 (iv) DL increased wages by 12% as against the budgeted increase of 8% which improved labour efficiency by 5%.  
 (v) Due to higher than expected inflation, actual factory overhead rate was 6% higher than the budgeted rate.  
 (vi) Conversion costs were incurred evenly throughout the process.  
 (vii) 27,400 units of Zee were transferred to finished goods. There was no opening or closing work in process. Finished goods inventory at the beginning and closing of the month was 1,000 units and 1,500 units respectively.

**Required:**

Compute the following:

- (a) Material price, mix and yield variances (06)  
 (b) Labour rate and efficiency variances (04)  
 (c) Over/under applied overheads and analyse it into:  
 (i) variable overhead expenditure and efficiency variances  
 (ii) fixed overhead expenditure and volume variances (06)

Q.6 Rose Industries Limited (RIL) is in process of preparation of its budget for the year ending 31 March 2020. In this respect, following information has been extracted from RIL's projected financial statements for the year ending 31 March 2019:

		Rs. in million
Sales (100% credit sales)	360,000 units	2,800
Cost of sales		
▪ Raw material		1,120
▪ Variable conversion cost		280
▪ Fixed conversion cost (including depreciation of Rs. 24 million)		160
Operating cost		
▪ Variable (varies with sales volume)		190
▪ Fixed (including depreciation of Rs. 16 million)		45
Closing inventory		
▪ Raw material		70
▪ Finished goods	40,000 units	110

**Information and projections for the budget year ending 31 March 2020:**

- (i) The management estimates that profitability can be increased by employing the following measures:
- Introduction of cash sales at 5% less than the credit sales price. This would increase the total sales volume by 30% whereas credit sales volume would reduce by 20% as some of the existing customers would shift to cash sales.
  - Installation of a software that would automatically generate follow-up emails to the customers and relevant reports for the management. The software having useful life of 10 years would be operational from 1 April 2019. The software would cost Rs. 2.5 million and its maintenance cost is estimated at Rs. 0.15 million per quarter. It is expected that as a result of the use of this software, RIL would be able to reduce its fixed operating costs by 15%.
  - As the purchases increase, RIL would negotiate with the suppliers and receive 2% trade discount.
  - Cost reduction measures would be taken which would save 5% of the variable conversion and variable operating costs.
- (ii) The increase in working capital requirements would be met by arranging a running finance facility of Rs. 100 million at a mark-up of 10% per annum. It is estimated that on an average, 90% of the facility would remain utilised during the budget year.
- (iii) Effect of inflation on price of raw material and all other costs (excluding depreciation) would be 10%.
- (iv) Closing raw material and finished goods inventories would increase by 8%.

RIL uses marginal costing and follows FIFO method for valuation of inventory.

**Required:**

Prepare budgeted profit or loss statement for the year ending 31 March 2020. *Assume that except stated otherwise, all transactions are evenly distributed over the year (360 days).*

(16)

Q.7 Following information has been extracted from the projected results of Saffron Limited (SL) for the year ending 31 March 2019:

Sales	Rs. 160 million
Contribution margin	30%
Margin of safety	25%

**Information for the next year ending 31 March 2020:**

- (i) SL is planning to increase its sales by reducing sales prices by 5% and launching a sales campaign at a cost of Rs. 5 million.
- (ii) Cost efficiency measures planned for the next year are expected to reduce variable cost per unit by 10%.
- (iii) Inflation impact on all costs would be 8%, except depreciation. At present, depreciation is 40% of the total fixed cost.
- (iv) Margin of safety would be maintained at 25%.

**Required:**

- (a) Prepare budgeted statement of profit or loss for the year ending 31 March 2020 based on the above projections. (06)
- (b) Compute the percentage increase in sales volume. (02)

Q.8 Jasmine Limited (JL) manufactures various products according to customers' specifications. In March 2019, JL is required to submit a tender for supply of 5,000 plastic bodies of a washing machine. In this respect, following information has been gathered:

- (i) The production would be carried out on JL's plant at its Sialkot factory. Cost of the plant is Rs. 3,600,000. Its estimated useful life is 96,000 hours. Each plastic body (unit) would require 2 machine hours.
- (ii) Production would be carried out in ten batches of 500 units each. Cost per unit for the first batch has been estimated as under:

		Rupees
Direct material	2 kg	150
Direct labour	3 labour hours	300
*Overheads (based on direct labour hours):		
▪ Variable overheads		240
▪ Fixed overheads		360

*\*Overheads do not include depreciation of the plant*

- (iii) Direct material consumption would reduce by 5% in each subsequent batch up to the third batch and would become constant thereafter.
- (iv) Applicable learning curve effect is 95% but it will remain effective for the first six batches only. The index of 95% learning curve is -0.074.

**Required:**

Compute the bid amount that JL should quote to earn 30% contribution margin. (10)

**(THE END)**