



Cost and Management Accounting

Q.1 Cricket Chemicals Limited (CCL) is a manufacturing concern and has two production processes. Process I produces two joint products i.e. X-1 and X-2. Incidental to the production of joint products, it produces a by-product known as Zee. X-1 is further processed in process II and converted into 'X1-Plus'.

Following information has been extracted from the budget for the year ending 31 August 2019:

(i) Process wise budgeted cost:

	Process I	Process II
	----- Rupees -----	
Direct material (500,000 liters)	98,750,000	-
Conversion cost	72,610,000	19,100,000

(ii) Expected output ratio from process I and budgeted selling prices:

Products	Output ratio in process I	Selling price (Rs. per liter)
Joint product – X-1	55%	-
Joint product – X-2	40%	532
By-product – Zee	5%	120
X1-Plus	-	768

Additional information:

- Material is added at the beginning of the process and CCL uses 'weighted average method' for inventory valuation.
- Joint costs are allocated on the basis of net realizable value of the joint products at the split-off point. Proceeds from the sale of by-product are treated as reduction in joint costs.
- Joint product X-2 is sold after incurring packing cost of Rs. 75 per liter.
- Normal production loss in process I is estimated at 5% of the input which occurs at beginning of the process. Loss of each liter results in a solid waste of 0.7 kg which is sold for Rs. 10 per kg. No loss occurs during process II.
- Budgeted conversion cost of process I and process II include fixed factory overheads amounting to Rs. 7,261,000 and Rs. 3,820,000 respectively.

Required:

- Prepare product wise budgeted income statement for the year ending 31 August 2019, under marginal costing. (14)
- CCL has recently received an offer from Football Industries Limited (FIL) to purchase the entire expected output of X-1 during the year ending 31 August 2019 at Rs. 670 per liter. It is estimated that if process II is not carried out, fixed costs associated with it would reduce by Rs. 2,500,000. Advise whether FIL's offer may be accepted. (02)

Q.2 Basketball (Private) Limited (BPL) is in the process of planning for the next year. BPL is currently operating at 70% of the production capacity. The management wants to achieve an increase of Rs. 36 million in profit after tax of the latest year.

The summarized statement of profit or loss for the latest year is as follows:

	Rs. in million
Sales	567
Cost of sales (60% variable)	(400)
Gross profit	167
Operating expenses (40% variable)	(47)
Profit before tax	120
Tax (25%)	(30)
Profit after tax	90

Following are the major assumptions/projections for the next year's budget:

- (i) Selling price of all products would be increased by 8%. However, to avoid any adverse impact of price increase, 10% discount would be offered to the large customers who purchase about 30% of the total sales. Additionally, distributor commission would be increased from 2% to 3% of net selling price.
- (ii) Average variable costs other than distributor commission are projected to increase by 4% while fixed costs other than depreciation are projected to increase by 5%.
- (iii) Depreciation for the latest year was Rs. 90 million and would remain constant.

Required:

- (a) Compute the amount of sales required to achieve the target profit. (09)
- (b) Determine the production capacity that would be utilized to achieve the sales as computed in (a) above. (02)

Q.3 Snooker (Private) Limited (SNPL) manufactures a component 'Beta' which is used as input for many products. The current requirement of Beta is 18,000 units per annum. Current production cost of Beta is as follows:

	Rs. per unit
Direct material	3,670
Direct labour	1,040
Variable manufacturing overheads	770
Fixed manufacturing overheads	870
Total cost	6,350

A supplier has recently offered SNPL to supply Beta at Rs. 7,000 per unit. The management has nominated a team to evaluate the offer which has gathered the following information:

- (i) There is a shortage of labour. However, some of the labour would become available due to outsourcing of Beta, which would be utilized for production of a product 'Zee'. The estimated selling price of Zee is Rs. 5,800 per unit whereas production cost would be as follows:
 - Direct material would cost Rs. 2,600 per unit.
 - Each unit of Zee would require 20% more labour as compared to each unit of Beta.
 - Estimated variable manufacturing overheads would be Rs. 480 per unit.
- (ii) Outsourcing of Beta and production of Zee would result in net reduction in fixed manufacturing overheads by Rs. 1,900,000 per annum.

Required:

Advise SNPL whether it should outsource component Beta or not.

(09)

Q.4 Hockey Pakistan Limited (HPL) is engaged in the manufacturing of a single product 'H-2' which requires a chemical 'AT'. Presently, HPL follows a policy of placing bulk order of 60,000 kg of AT. However, HPL's management is presently considering to adopt economic order quantity model (EOQ) for determining the size of purchase order of AT.

Following information is available in this regard:

- (i) Average annual production of H-2 is 45,600 units. Production is evenly distributed throughout the year.
- (ii) Each unit of H-2 requires 10 kg of AT. Cost of AT is Rs. 200 per kg. 5% of the quantity purchased is lost during storage.
- (iii) Annual cost of procurement department is Rs. 2,688,000. 65% of the cost is variable.
- (iv) AT is stored in a third party warehouse at a cost of Rs. 6.25 per kg per month.
- (v) HPL's cost of financing is 8% per annum.

Required:

- (a) Calculate economic order quantity. (06)
- (b) Supplier of AT has offered a discount of 5% quantity per order is increased to 120,000 kg. Advise whether HPL should accept the offer. (06)
- (c) Discuss any **three** practical limitations of using the EOQ model. (03)

Q.5 (a) Discuss any **three** advantages and **three** disadvantages if a project is financed through debt as against when it is financed through equity. (03)

(b) Golf Limited (GL) is engaged in the manufacturing and sale of a single product 'Smart-X'. The existing manufacturing plant is being operated at full capacity but the production is not sufficient to meet the growing demand of Smart-X. GL is considering to replace it with a new Japanese plant. The production capacity of new plant would be 50% more than the existing capacity.

To assess the viability of this decision, the following information has been gathered:

- (i) The purchase and installation cost of new plant would be Rs. 500 million and Rs. 25 million respectively. The supplier would send a team of engineers to Pakistan for final inspection of the plant before it is commissioned. 50% of the total cost of Rs. 12 million to be incurred on the visit, would be borne by GL.
- (ii) As a result of installation of the new plant, fixed costs other than depreciation would increase by Rs. 30 million.
- (iii) The existing plant has an estimated life of 10 years and is in use for the last 6 years. Plant's tax carrying value is Rs. 50 million. A machine supplier has offered to purchase the existing plant immediately at Rs. 45 million.
- (iv) During the latest year, 6 million units were sold at an average selling price of Rs. 550 per unit. Variable manufacturing cost was Rs. 450 per unit. GL expects that it can increase the sales volume by 25% in the first year after the plant's installation. Thereafter, the sales volume would increase by 4% per annum.
- (v) The new plant would be depreciated under the straight line method. Tax depreciation is calculated on the same basis. The residual value of the plant at the end of its useful life of 4 years is estimated at Rs. 60 million.
- (vi) Applicable tax rate is 30% and tax is paid in the year in which the liability arises.
- (vii) Rate of inflation is estimated at 5% per annum and would affect the revenues as well as expenses.
- (viii) GL's cost of capital is 12%.
- (ix) All receipts and payments would arise at the end of the year except cost of setting up the plant which would arise at the beginning of the year. It may be assumed that the new plant would commence operations at the start of year 1.

Required:

On the basis of internal rate of return (IRR), advise whether GL should acquire the new plant. (17)

Q.6 Rugby Limited (RL) is engaged in manufacturing of a product 'B1'. Presently, RL is considering to launch a new product B1-Extra which has a demand of 10,000 units per month. The estimated selling price of B1-Extra is Rs. 2,000 per unit. Other relevant information is as follows:

- (i) Each unit of B1-Extra would require 2 kg of material X and 1.5 labour hours. Material X is available in the market at Rs. 520 per kg. Alternatively, instead of material X, RL can use 2.5 kg of a substitute material Y which can be produced internally. Production of each kg of Y would require raw material costing Rs. 300 and 0.5 labour hour.
- (ii) Presently, about 14,000 labour hours remain idle each month and are paid at the rate of 50% of the normal wage rate of Rs. 250 per hour and such payments are charged to administration expenses.
- (iii) Any shortfall in required labour hours can be met through overtime at the rate of 40% above the normal wage rate.
- (iv) Records of last 4 months show the following factory overheads (variable and fixed) at different levels of direct labour hours:

	Month 1	Month 2	Month 3	Month 4
Direct labour (Hours)	174,000	172,000	170,000	168,000
Factory overheads (Rs. in '000)	58,280	57,840	57,400	56,960

Required:

Calculate the expected relevant cost per unit of B1-Extra and determine the cost gap (if any) if RL requires a margin of 30%. (11)

Q.7 Tennis Trading Limited (TTL) was incorporated on 1 September 2018 and would start trading from the month of October 2018. As part of planning and budgeting process, the management has developed the following estimates:

- (i) During the month of September 2018, TTL would pay Rs. 5 million, Rs. 2 million and Rs. 1.2 million for purchase of a property, equipment and a motor vehicle respectively.
- (ii) Projected sales for October is Rs. 12 million. The sales would increase by Rs. 2.5 million per month till January 2019. From February 2019 and onwards, sales would be Rs. 25 million per month.
- (iii) Cash sales is estimated at 30% of the total sales.
- (iv) Credit customers are expected to pay within one month of the sales.
- (v) 80% of the credit sales would be generated by salesmen who would receive 5% commission on sales. The commission is payable in the following month after sales.
- (vi) Gross profit margin would be 30%.
- (vii) TTL would maintain inventory at 80% of the projected sale of the following month, up to December 2018 and thereafter, 85% of the projected sale of the following month. All purchases of inventories would be on two months' credit.
- (viii) Salaries would be Rs. 1.5 million in September and Rs. 2 million per month, thereafter. Other administrative expenses would be Rs. 1 million per month from September till January 2019 and Rs. 1.3 million per month thereafter. Both types of expenses would be paid in the same month in which they are incurred.
- (ix) An aggressive marketing scheme would be launched in September 2018. The related expenses are estimated at Rs. 7 million. 50% of the amount would be payable in September and 50% in October 2018.
- (x) Marketing expenses from October 2018 would consist of 65% variable and 35% fixed expenses. Total expenses in October 2018 would be Rs. 2 million. All expenses would be paid in the month in which they occur.
- (xi) Bank balance as of 1 September 2018 is Rs. 12 million. TTL has arranged a running finance facility from a local bank at a mark-up of 10% per annum. The mark-up is payable at the end of each month on the closing balance.

Required:

Prepare a cash forecast (month-wise) from September 2018 to February 2019. (18)

(THE END)