



Cost and Management Accounting

Instructions to examinees:

- (i) Answer all **SIX** questions.
 - (ii) Answer in **black** pen only.
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Q.1 White Limited (WL) had prepared five years' projection for its then newly developed product 'Delta'. Based on the original estimates, the management was highly optimistic regarding the performance of Delta. However, during the first two years, Delta could not meet the expectations and had incurred heavy losses. Now, at the beginning of third year, the management is considering two options; either to discontinue production of Delta or continue to produce and sell Delta for three more years.

Following information is available in this respect:

Original estimates:

- (i) Machinery would be purchased for Rs. 2,000,000 which would be depreciated at 25% reducing balance method. Tax depreciation would be calculated on the same basis. The estimated residual value of machinery would be equal to its written down value at the end of project life i.e. 5 years.
- (ii) Quantity to be produced and sold would be 3000, 3500, 4800, 5500 and 6000 units from year 1 to year 5 respectively.
- (iii) Sales price for the first year would be Rs. 1,000 per unit subject to increase of 10% per annum.
- (iv) Each Delta would require one unit of material A-4. The supplier of A-4 has offered a discount of 20% for all annual orders of 3000 units or more.
- (v) Variable cost for the first year would be Rs. 600 per unit after accounting for 20% discount from supplier. Variable cost would comprise of direct material, direct labour and variable overhead in the proportion of 50:30:20.
- (vi) The storage facility would be acquired on rent for 5 years. The rent for first year would be Rs. 500,000 which would be subject to an annual increase of 10%. However, if the agreement is terminated before 5 years, penalty equivalent to 6 months' rent payable in the year the termination takes place, would need to be paid.
- (vii) Other fixed cost would amount to Rs. 500,000 per annum.
- (viii) Tax rate applicable to WL is 30%. Tax is payable in the same year in which it arises.
- (ix) WL's weighted average cost of capital is 15%.
- (x) All costs unless otherwise specified are subject to 5% inflation rate.

Option 1: Discontinue production of Delta

- (i) The existing stock of 1500 units of Delta would be sold to an existing customer at 75% of price based on the original estimates.
- (ii) Machinery would be sold for Rs. 1,500,000.
- (iii) All other information would remain the same as per original estimates.

Option 2: Continue to produce and sell Delta for 3 more years

- (i) WL would continue to sell Delta (including opening stock of 1500 units) at the budgeted price based on original estimates. However, at that price, WL would only be able to sell 80% of budgeted quantity including 5% units to be given away as free under the promotional scheme.
- (ii) Marketing campaign would be carried out at Rs. 500,000 per annum.
- (iii) More stringent controls would be introduced to reduce variable overheads and other fixed cost by 20%.
- (iv) All other information would remain the same as per original estimates.

Required:

Evaluate both options by using net present value method. Recommend the best course of action that WL should follow.

(20)

Notes:

- *Net present value based on original estimates is not required.*
- *Assume that except where stated otherwise, all cash flows would arise at the end of the year.*

- Q.2 (a) Yellow Limited (YL) is engaged in manufacturing and selling of three products that are Alpha, Beta and Gamma. YL has recently received an order from an overseas customer for 3000, 4000 and 1000 kg of Alpha, Beta and Gamma respectively. This order represents 25% of total demand for each of the three products. The management has decided to consider this order as 'high priority' as it is expected that repeated orders would be received if the customer is fully satisfied; therefore, this order would be fulfilled before any other order.

The per unit details of sales price, costs and direct labour hours required for each product are given below:

	Alpha	Beta	Gamma
	----- Rupees -----		
Selling price	10,000	9,000	12,500
Specialized chemical	2,500	1,800	3,500
Direct labour	1,250	2,000	1,500
Variable production cost	250	200	500
*Fixed production cost	750	400	600
*Selling and administration costs (30% variable)	250	200	300
	----- Hours -----		
Direct labour hours required	6	5	8

**Fixed costs are allocated on the basis of expected demand*

Each product requires specialized imported chemical. YL has been allowed to import that chemical maximum to Rs. 70 million per annum.

The management of YL is concerned over restrictions on import of specialised chemical in the existing country of operation as any shortfall to meet demand cannot be fulfilled. One of the proposals is to shut-down the existing plant and start manufacturing in Country X.

Following information is relevant if YL considers to start manufacturing in Country X:

- (i) There is no import restriction on required chemical.
- (ii) Direct labour hours required for manufacturing YL's products are in short supply and available up to 100,000 hours only.
- (iii) Any shortfall in the units can be met by sub-contracting to an outside supplier. The cost of buying each finished product of Alpha, Beta and Gamma would be equivalent to Rs. 5000, Rs. 4500 and Rs. 7500 respectively. However, the order considered as 'high priority' would be manufactured by YL itself.
- (iv) All other information unless otherwise specified would remain the same for Country X.

YL operates a just-in-time system and has no inventories of chemical or finished goods.

Required

Recommend whether YL should continue manufacturing in the existing country or start manufacturing from Country X. Your recommendation should be based on profit maximizing production schedules.

(15)

- (b) Discuss the non-financial factors that management would need to consider before deciding to sub-contract the manufacturing of its products. (04)

Q.3 Following information pertains to one of the products 'Violet' of Blue Limited (BL), for the month of August 2021:

- (i) Production for the month was budgeted at 12,000 units. The standard cost per unit of Violet is as follows:

	Rupees
Direct materials:	
Alpha – 4 kg	800
Beta – 6 kg	900
Direct labour – 2 hours	300
*Production overheads – 2 direct labour hours	260

**Fixed production overheads were estimated at Rs. 1.2 million based on budgeted direct labour hours*

- (ii) Direct materials are added at the beginning of the production process. BL accounts for material price variance at the time of issuance of material to production and uses FIFO method for inventory valuation. Following information has been extracted from the stock cards of Alpha and Beta:

Date	Description	Alpha		Beta	
		kg	Cost per kg (Rs.)	kg	Cost per kg (Rs.)
1-Aug	Opening balance	2,000	220	4,000	140
		4,000	190	4,000	150
2-Aug	Purchase returns	(1,000)	190	-	-
3-Aug	Purchases	75,000	195	86,000	155
5-Aug	Purchase returns	-	-	(500)	140
7-Aug	Issues to production	(60,000)	-	(70,000)	-

- (iii) Conversion costs are incurred evenly throughout the process. Conversion costs incurred for August 2021 are as under:

	Rupees
Direct labour paid for 26,730 hours (including 10% idle hours due to machine break-down)	4,000,000
Variable production overheads	2,000,000
Fixed production overheads	1,400,000

- (iv) Actual sales for the month of August 2021 were 12,500 units. Details of opening and closing inventories are hereunder:

	Opening	Closing
Finished goods	1,200 units	1,500 units
Work in process	1,000 units (60% complete)	500 units (80% complete)

- (v) BL uses standard absorption costing system.

Required:

- (a) Prepare a statement of equivalent production units. (02)
- (b) Compute the following variances:
- (i) Material price, mix and yield variances (09)
 - (ii) Variable production overhead rate and efficiency variances (04)
 - (iii) Fixed production overhead expenditure, efficiency and capacity variances (05)

Q.4 Green Limited (GL) produces a chemical that passes through two processes before being transferred to warehouse. Following information pertains to Process II for the month of August 2021:

	Production (kg)	Cost (Rs. in '000)
Opening work in process	7,500	3,000
Transferred from Process I	45,000	27,000
Material added in Process II	22,500	11,250
Conversion costs incurred in Process II	-	1,500
Finished goods transferred to warehouse	60,000	-
Closing work in process	9,000	-

In Process II, material is added at start of the process and conversion costs are incurred evenly throughout the process. Process loss is determined on inspection which is carried out on 60% completion of the process. Process loss is estimated at 10% of the inspected quantity and is sold for Rs. 200 per kg.

The details of opening and closing work in processes are as follows:

Opening work in process		Closing work in process	
kg	Completion %	kg	Completion %
5,250	80%	5,400	70%
2,250	40%	3,600	30%

GL uses FIFO method for inventory valuation.

Required:

Prepare Process II account for the month of August 2021.

(10)

Q.5 Red Limited (RL) manufactures and sells plastic chairs. The relevant details at different demand levels are as follows:

Demand in units	16,000	14,000	11,800	9,300
	----- Rupees -----			
Sale price (net of 3% distributor commission) per unit	2,850	2,945	3,040	3,135
Material	20,520,000	18,900,000	15,930,000	12,555,000
Conversion cost	11,403,600	10,750,000	9,374,000	8,299,000
Operating expenses	3,500,000	3,500,000	3,500,000	3,500,000

The management is considering manufacturing either 14,000 chairs or 16,000 chairs. In the above table, fixed conversion cost increases by 10% if number of chairs manufactured exceeds 13,000. Further, material cost and variable conversion costs reduce by 5% and 3% respectively, if number of chairs manufactured exceeds 15,000.

In order to achieve the desired level of sales, RL is also considering to offer 5% sale discount on bulk order of 25 chairs and 10% sale discount on bulk order of 50 chairs. The sales mix after introduction of discount is estimated to be in the ratio of 60:30:10 for normal sale, 5% sale discount and 10% sale discount respectively. It is estimated that introduction of discount would result in increase in distributor commission by 1% on bulk sale of 25 chairs and 2% on bulk sale of 50 chairs.

Required:

- (a) Determine the breakeven revenue and margin of safety units at the demand level of 14,000 and 16,000 chairs.
- (b) Briefly discuss any conclusion which may be drawn from your calculation in (a) above.

(14)

(02)

Q.6 (a) Identify any **four** situations under which the cost of inventories may exceed its net realisable value. **(02)**

(b) Orange Limited (OL) manufactures four products. The information related to its inventory of each product for the year ended 30 June 2021 is as follows:

	A	B	C	D
Closing inventory (units)	15,000	25,000	5,000	8,000
Cost per unit using weighted average method (Rs.)	800	700	900	1,275
Retail price per unit inclusive of 10% sales tax (Rs.)	1,144	990	1,320	1,980
Variable selling cost per unit (Rs.)	80	75	100	110
Defective units (included in closing inventory)	2,400	4,000	-	-
Rework cost per defective unit (Rs.)	260	320	-	-

Additional information:

- During physical inventory count of Product C, a discrepancy of 900 completed units was observed. On investigation, it was found that 5,600 units supplied to a customer were erroneously recorded as 6,500 units.
- The defective units can be sold in the market at 60% of the current retail price without incurring any rework and selling costs.
- Due to decrease in raw material prices, the products similar to B and D, offered by the competitors, are available in the market at a discount of 15% and 20% respectively, of OL's current retail price. OL would have to adjust its sales prices accordingly.

Required:

- (i) Prepare entries to record the adjustments that need to be incorporated for correct valuation of inventory. **(10)**
- (ii) Determine the adjusted value of inventory as at 30 June 2021. **(03)**

(THE END)