ISBN: 978-93-5586-555-7

Scanner Appendix

CMA Final Group - III
(Solutions of June - 2024)

Paper - 16 : Strategic Cost Management

Chapter - 2 : Quality Cost Management
2024 - June [4] (b)
Lean Accounting:
Lean Accounting is the application of Lean thinking to all accounting and finance process and system. It is an essential component of a successful Lean transformation for any organization. Lean accounting uses a method that categorizes costs by value stream rather than by department. This approach "provides the basis for sound management decisions". Lean accounting groups together costs that fall outside of the value stream as "business sustaining costs" that do not get included in value stream costs. This, in turn, helps the businesses to find better price points for products and do further research into high-cost areas. The bottom line is that Lean accounting can help business leaders quickly know if they are heading in the right direction or need to make a change.

The principles and Practices of Lean Accounting are appended in the following table:

Principles	Practices
Lean & Simple Business Accounting	Continuously eliminates waste from the transactions, processes, reports and other accounting methods.
Accounting process that supports lean transformation	Management Control & Continuous improvement. Cost Management. Customer & supplier value and Cost Management.

Clear & Timely Communication of information	Financial reporting. Visual reporting of financial & non-financial performance measurements. Decision making.
Planning from a lean perspective	Planning & Budgeting. Impact of lean improvement. Capital planning. Invest in people.
Strengthen internal accounting control	Internal control based on Lean Operational Controls. Inventory Valuation.

Chapter - 3 : Decision Making Techniques

2024 - June [2]

(a) **Contribution per unit**

Manufactured "ZN 100" = ` 350

Manufactured "ZN 200" = ` 255

(b) **Contribution per unit**

Manufactured "ZN 100" = ` 350

Purchased "ZN 100" = ` 210

(c) Quantity of each product that ZOYAN Limited should manufacture and / or purchase to maximize operating income.

Manufactured "ZN 200"	12,000 units
Manufactured "ZN 100"	1,000 units
Purchased "ZN 100"	6,000 units

2024 - June [3] (a)

(i) If there is no demand from WYE, the optimal strategy for EXE would be to manufacture 1,25,000 units for external demand where it can achieve the maximum contribution of ` 31,25,000.

(ii) Minimum transfer price = ` 16.25 per unit
If EXE is strong enough, it can demand a price of ` 35 which WYE will be paying to outside suppliers.

(iii) EXE can supply 1,25,000 units for external demand and earn the maximum contribution ` 31,25,000.
Balance 75,000 units can be offered to WYE at the variable cost of ` 15.
WYE will not pay anything above ` 35 per unit
EXE will not accept anything below ` 15 per unit.
Total benefit to be shared equally between X and Y = ` 20 per unit

∴ Transfer price per unit, will be = ` 25, so that WYE benefits by ` 10 and EXE also gets additional contribution of ` 10 per unit transferred.
Total units to be transferred = 75,000 units.

2024 - June [3] (b)
Equivalent Annualized Cost (EAC) = ` 9,85,022 (Machine BX-life 12 year)
Equivalent Annualized Cost (EAC) = ` 11,01,651 (Machine SW-life 6 year)
Recommendation:
Since the annualized equivalent Cost of Machine BX (` 9,85,022) is lower than that of Machine SW (`11,01,651), the Machine BX should be purchased.

Chapter - 4 : Activity Based Management and Just in Time (JIT)
2024 - June [4] (a)
(i) **Statement of Ranking**

Particulars	**VN**	**DN**	**XN**
Selling price per unit	` 5,000	` 4,000	` 3,500
Less: Material cost per unit	` 2,500	` 2,500	` 2,000
Throughput per unit	` 2,500	` 1,500	` 1,500
Throughput Return per hour	` 500	` 250	` 375
Throughput Accounting Ratio	1.67	0.83	1.25
Ranking	I	III	II

Statement showing optimal mix for maximization of profit

Product	**No. of units**	**Total Machine hours**	**T/P per hr. (`)**	**Total T/P (`)**
DN to Beta Ltd.	2,500	15,000	250	37,50,000
VN	3,000	15,000	500	75,00,000
XN	1,250	5,000	375	18,75,000
Total				1,31,25,000
Less: Total Factory cost				1,05,00,000
Profit				26,25,000

(ii) **Statement showing optimal plan of profit if there is no such court's judgement:**

Product	**No. of units**	**Total Machine hours**	**T/P per hr. (`)**	**Total T/P (`)**
VN	3,000	15,000	500	75,00,000
XN	2,000	8,000	375	30,00,000
DN	2,000	12,000	250	30,00,000
Total				1,35,00,000
Less: Total Factory Cost				1,05,00,000
Profit				30,00,000

From the above Calculation, we can say that court's judgement has affected the optimal plan of Profit. Due to court's judgement profit of the company has been reduced by ` 3,75,000.

Chapter - 5 : Evaluating Performance

2024 - June [5] (a)

	Type I	**Type II**	**Total (`)**
Std. Labour Cost (`)	1,60,000	86,400	2,46,400
Labour Cost Variance (`)	56,000 (A)	33,600 (A)	89,600(A)
Efficiency Variance (`)	32,000 (A)	21,600 (A)	53,600 (A)
Idle Time Variance ** (`)	Nil	Nil	0

** Since normal waiting and break are included in standard hours of production

2024 - June [5] (b)

(i) Variable Overhead Efficiency Variance = ` 11,400 (F)

(ii) Variable Overhead Expenditure Variance = ` 10,500 (A) or ` 10,501 (A)

(iii) Fixed Overhead Efficiency Variance = ` 3,800 (F)

(iv) Fixed Overhead Capacity Variance = ` 14,000 (F)

Chapter - 6: Linear Programming

2024 - June [6] (a)

Let the firm produce x_1 units of product A, x_2 units of product B and x_3 units of product C. The profit per unit of products A, B and C is ` 50, ` 50 and ` 80 respectively.

The objective function is : Maximise $Z = 50x_1 + 50x_2 + 80x_3$

Raw material constraints are : $3x_1 + 4x_2 + 5x_3 = 5{,}000$ & $5x_1 + 3x_2 + 5x_3 \leq 7{,}500$

The labour time for each unit of product A is twice that of product B and three times that of product C. Also, the entire labour force can produce the equivalent of 3,000 units.

$$x_1 + \frac{x_2}{2} + \frac{x_3}{2} \leq 3{,}000$$

$6x_1 + 3x_2 + 2x_3 \leq 18,000$
Demand constraints are: $x_1 \geq 600$, $x_2 \geq 650$ and $x_3 \geq 500$
Since the ratios of the number of units produced must be equal to 2 : 3 : 4, therefore,

$\frac{1}{2}x_1 = \frac{1}{3}x_2$ and $\frac{1}{3}x_2 = \frac{1}{4}x_3$

Or, $3x_1 = 2x_2$ and $4x_2 = 3x_3$
The linear programming model can be formulated as follows:
Maximise $Z = 50\ x_1 + 50\ x_2 + 80\ x_3$
Subject to the Constraints
$3x_1 + 4x_2 + 5x_3 + \leq 5,000$
$5x_1 + 3x_2 + 5x_3 + \leq 7,500$
$6x_1 + 3x_2 + 2x_3 + \leq 18,000$
$3x_1 + 2x_2$ and $4x_2 = 3\ x_3$
$x_1 \geq 600$, $x_2 \geq 650$ and $x_3 \geq 500$

Chapter - 9 : Simulation
2024 - June [6] (b)
(i) & (ii) Time to deal with Clients:

Time (Minutes)	**Probability**	**Cumulative Probability**	**Assigned Random Number**
2	0.05	0.05	00 – 04
4	0.10	0.15	05 – 14
6	0.15	0.30	15 – 29
10	0.30	0.60	30 – 59
14	0.25	0.85	60 – 84
20	0.10	0.95	85 – 94
30	0.05	1.00	95 – 99

Time between arrivals:

Time (Minutes)	Probability	Cumulative Probability	Assigned Random Number
1	0.2	0.2	00 – 19
8	0.4	0.6	20 – 59
15	0.3	0.9	60 – 89
25	0.1	1.0	90 – 99

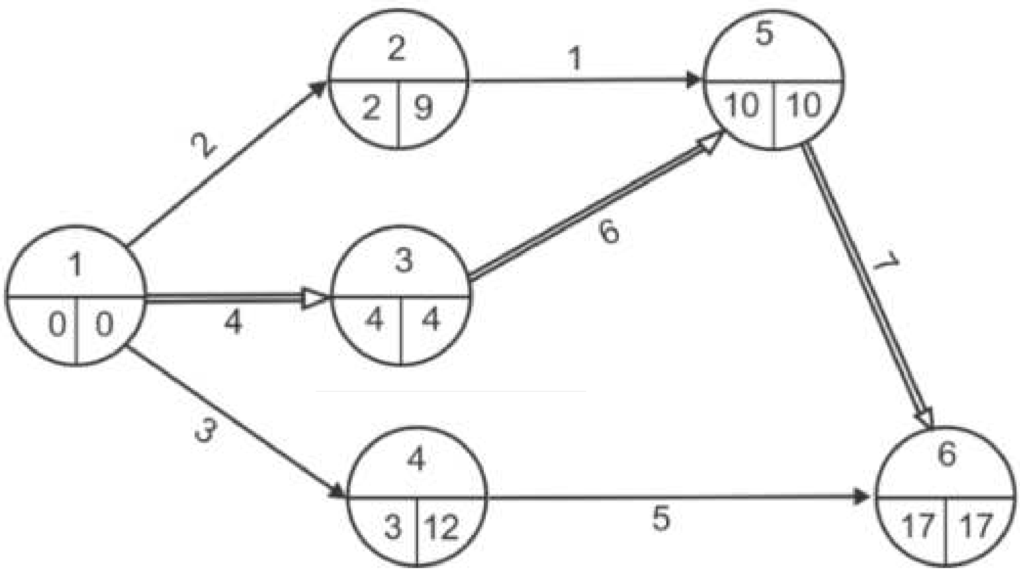
Simulation table for time between arrivals and service time:

Client	RN for arrival	Time Between Arrival	Arrival Time	Time in	RN for Service	Serving Time	Time out	Waiting Time
1	3	1	1	1	63	14	15	--
2	47	8	9	15	71	14	29	6
3	43	8	17	29	62	14	43	12
4	73	15	32	43	33	10	53	11
5	86	15	47	53	26	6	59	6
6	36	8	55	59	16	6	65	4
7	96	25	80	80	80	14	94	--
8	47	8	88	94	45	10	104	6
9	36	8	96	104	60	14	118	8
10	61	15	111	118	11	4	122	7
11	46	8	119	122	14	4	126	3
12	98	25	144	144	10	4	148	--

If a client has to wait for more than 10 minutes, he is entitled for a holiday voucher worth ` 15. It is obvious from the above table that Clients 3 & 4 wait for more than 10 minutes. Hence, number of clients who receive a holiday voucher is 2.

Chapter - 10 : Network Analysis PERT, CPM
2024 - June [7]

(i) The network as below:



(ii) Critical path is 1 – 3 – 5 – 6
The total project duration is sum of the duration of each critical activity, i.e.
4 + 6 + 7 = 17 Weeks.

(iii) Variance of the critical path is sum of the variance of each critical activity, i.e.
1 + 4 + 4 = 9 Weeks.
OR,(S.D.) $= \sqrt{\textit{Variance of the Project}} = 3$
(a) At least 3 weeks earlier than expected:
The Standard normal equation can be applied as follows:

$$Z = \frac{\text{Due date} - \text{Expected date of Completion}}{\text{S.D.}} = \frac{-3}{3} = -1$$

Referring to the normal table, we find a probability of = 0.1587 i.e. 15.87 %

(b) No more than 3 weeks later than expected:

$$Z = \frac{20 - 17}{3} = 1$$

Probability = (0.50 + 0.3413) = 0.8413 i.e. 84.13%

(iv) $Z = \frac{18 - 17}{3} = 0.33$

Therefore, Probability of meeting the due date = 0.50 + 0.1293 = 0.6293 i.e. 62.93%

Probability of not meeting the due date = (1 – 0.6293) = 0.3707 = 0.3707 i.e. 37.07%

Chapter - 12 : Business Application of Maxima and Minima

2024 - June [8] (a)

(i) Optimal Production per week = 29 sets

(ii) Monopoly Price = ` 368

(iii) Total Cost = ` 3,403

Total Profit = ` 7,269

Chapter - 13 : Business Forecasting Models-Time Series and Regression Analysis

2024 - June [8] (b)

The required equation of Straight line trend is y = 26 + 1.893x (Origin = 2018,x unit =1 year)

Export Turnover for Year 2025:

For the year 2025, x=7

So, the estimated no. of exports in the year 2025:

= ` 39.25 Crores

Chapter - 15 : Objective Questions

2024 - June[1] {C}

(i) (c)
(ii) (a)
(iii) (c)
(iv) (b)
(v) (a)
(vi) (c)
(vii) (a)
(viii) (a)
(ix) (d)
(x) (a)
(xi) (b)
(xii) (c)
(xiii) (b)
(xiv) (d)
(xv) (c)

Shuchita Prakashan (P) Ltd.
B-45/141,Street No. 5
Guru Nanak Pura Laxmi Nagar
Delhi - 110092
Visit us : www.scanneradda.com

✿