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SUGGESTED SOLUTION

CA FINAL NOV'19

SUBJECT- SCM AND P.E.

Test Code - FNJ 7214

BRANCH - () (Date :)

Head Office : Shraddha, 3rd Floor, Near Chinai College, Andheri (E), Mumbai – 69.
Tel : (022) 26836666

ANSWER - 1

(i) Impact of Management Consultant's Plan on Profit of the IHCL

Indraprastha Health Care Ltd.

Statement showing Cost Benefit Analysis

Particulars	**Rs.**
Cost :	
Incremental Cost due to Increased Readmission	25,00,000
Benefit :	
Saving in General Variable Cost due to Reduction in Patient Days	37,50,000
(15,000 Patients × (2.5 Days – 2.0 Days) ×Rs. 500)	
Revenue from Increased Readmission (300 Patients ×Rs. 4,500)	13,50,000
Incremental Benefit	26,00,000

(4 MARKS)

(ii) Comment

Primary goal of investor – owned firms is shareholder wealth maximization, which translates to stock price maximization. Management consultant's plan is looking good for the IHCL as there is a positive impact on the profitability of the company (refer Cost Benefit Analysis)

Also IHCL operates in a competitive environment so for its survival, it has to work on plans like above.

But there is also the second side of a coin that cannot also be ignored i.e. Indraprasthaity values and business ethics. Discharging patients before their full recovery will add discomfort and disruption in their lives which cannot be quantified into money. There could be other severe consequences as well because of this practice. For gaining extra benefits, IHCL cannot play with the life of patients. It would put a question mark on the business ethics of the IHCL.

May be IHCL would able to earn incremental profit due to this practice in short run but It will tarnish the image of the IHCL which would hurt profitability in the long run.

So, before taking any decision on this plan, IHCL should analyze both quantitative as well as qualitative factors.

(4 MARKS)

ANSWER – 2

(i) Statement of Profitability of DRB Ltd.

	Products (Amount in Rs.)				
	D_1	**D_2**	**D_3**	**D_4**	**Total**
Sales	26,00,000	45,20,000	42,40,000	32,00,000	1,45,60,000
Direct Materials	6,00,000	18,20,000	18,80,000	10,00,000	53,00,000
Direct Wages	8,00,000	20,80,000	12,80,000	12,00,000	53,60,000
Overheads (W.N. 2) :					
Machine Related	1,60,000	1,56,000	64,000	2,40,000	6,20,000
Batch Related	1,00,000	1,30,000	80,000	1,50,000	4,60,000
Contribution	9,40,000	3,34,000	9,36,000	6,10,000	28,20,000
Product Specific Fixed Overheads	10,00,000	1,00,000	2,00,000	1,00,000	14,00,000
Gross Profit	(60,000)	2,34,000	7,36,000	5,10,000	14,20,000
General Fixed Overheads					6,20,000
Profit					8,00,000

(5 MARKS)

(ii) Break – even Point

Total Sales value of Product 'D_1'	= Rs. 26,00,000
Total Contribution of Product 'D_1'	= Rs. 9,40,000
Specific Fixed Overheads (Product D_1)	= Rs. 10,00,000
Break – even Sales (Rs.)	$= \frac{Specific\ Fixed\ Cost}{Total\ Contribution} \times Total\ Sales\ Value$
	$= \frac{Rs.10,00,000}{Rs.9,40,000} \times Rs.26,00,000$
	= Rs. 27,65,957.45

Break – even Sales (Units) = $\frac{Rs.27,65,957.45}{Rs.13.00}$ = 2,12,766 units

However, production must be done in batches of 100 units. Therefore, 2,128 batches are required for break even. Due to the production in batches, 34 units (2,128 batches × 100 units – 2,12,766 units) would be produced extra. These 34 units would add extra cost Rs. 282.20 (34 units ×Rs. 8.3*). Accordingly, break – even units as calculated above will increase by 22 units $\left(\frac{Rs.282.20}{Rs.13.00}\right)$.

(*) $\left(\frac{Rs.6,00,000+Rs.8,00,000+Rs.1,60,000+Rs.1,00,000}{2,00,000\ units}\right)$

Break – even units of product 'D_1' is 2,12,788 units (2,12,766 units + 22 units).

(5 MARKS)

Workings

W.N. – 1

Calculation Showing Overhead Rates

Overhead's Related Factors	Overhead cost (Rs.) (a)	Total No. of Units of Factors [b]	Overhead Rate (Rs.) [a]/[b]
Machining Hours	6,20,000	15,50,000 hrs.	0.40
Batch Production	4,60,000	9,200 batches	50.00

W.N. – 2

Statement Showing – Overhead Costs Related to Product

Particulars	D_1	D_2	D_3	D_4
Machining hrs. related overheads	Rs. 1,60,000 (4,00,000 hrs×Rs. 0.40)	Rs. 1,56,000 (3,90,000 hrs×Rs. 0.40)	Rs. 64,000 (1,60,000 hrs×Rs. 0.40)	Rs. 2,40,000 (6,00,000 hrs×Rs. 0.40)
Batch related Overheads	Rs. 1,00,000 (2,000 batches ×Rs. 50)	Rs. 1,30,000 (2,600 batches ×Rs. 50)	Rs. 80,000 (1,600 batches ×Rs. 50)	Rs. 1,50,000 (3,000 batches ×Rs. 50)

(2 MARKS)

ANSWER – 3

Workings

Statement Showing "Contribution / Machine Hour"

	'Bottle'	'Toy'
Demand (units)	3,00,000	40,000
Sales (Rs./u)	0.80	30.00
Less: Variable Cost (Rs./u)	0.32	24.00
Less: Specific Fixed Cost (Rs./u)	---	2.50
Contribution (Rs./u)	0.48	3.50
Machine Hours Required per unit	0.025	0.0625
Contribution / Machine Hour	19.20	56.00

(3 MARKS)

Advice on Supply of 3,00,000/ 4,00,000 Bottles

(i) JM Ltd. can accept plastic molded toy's order as sufficient number of hrs. i.e. 2,500 hrs. (10,000 hrs.- 3,00,000 bottles × 0.025 hrs.) are available and would be able to generate additional benefit of Rs.3.50 per unit on 40,000 units of toys i.e. Rs.1,40,000.

(2 MARKS)

(ii) If the order for the supply of bottles increases to 4,00,000 bottles, then 2,500 more hrs. will be required to produce the additional bottles. JM Ltd. has to decide whether to utilize 2,500 hrs. for existing bottle order or for toy Order.

Machine time is limiting factor. Therefore, contribution per machine hour from both the activities (i.e. bottles and toys) should be calculated to decide whether

the order should be accepted. Contribution per hour is more in case of toys (refer workings). Therefore, JM Ltd. should utilize the remaining 2,500 hours for manufacturing toys rather than to fulfil the order for supply of additional bottles.

Prioritizing production based on contribution per machine hour would maximize profits. *However, existing order fulfilment is necessary for building long term and sustainable customer relationship.* Developing and maintaining long term and intimate relationships with the profitable customers provides valuable benefits to the company as the relationships between company and customers grow, a customer who is satisfied with the company's products and services, tends to commit the relationship, and buy more over time. *Cost of keeping the existing customers is less expensive than the cost of acquiring new customers.*

Hence, JM Ltd. should be taken into consideration long term supplier relation before accepting the toy order based on financial consideration as contribution per hour is more in case of toys. Further, company may also explore outsourcing opportunities for production of toys.

(3 MARKS)

(iii) Minimum number of toys needed to be manufactured to justify the increase in fixed cost of Rs.1,00,000 to make the mould is 25,000 toys {1,00,000/ (Rs.28 - Rs.24}. Thus, as long as company has excess capacity available to manufacture more than 25,000 toys it is cheaper to produce than to buy from subcontractor.

Minimum Expected Excess Capacity hours to justify = (25000 toys / 16 toys)
= 1562.5 or 1563 hours

(2 MARKS)

ANSWER – 4

Computation of Contribution per Key Factor(s) for Various Products

Particulars	Products		
	P	Q	R
Selling Price p. u. (Rs.)	500	400	800
Variable Cost p. u. (Rs.):			
Material	400 (Rs.20 × 20 Kg.)	240 (Rs.20 × 12 Kg.)	600 (Rs.20 × 30 Kg.)
Machine Charge	60 (Rs.20 × 3	100 (Rs. 20 × 5	80 (Rs.20 × 4

	hrs)	hrs)	hrs)
Total Variable Cost p. u. (Rs.)	460	340	680
Contribution p. u. (Rs.)	40	60	120
Ranking	**III**	**II**	**I**
Requirement of Material (Kg.)	20	12	30
Contribution per Kg. (Rs.)	2.00	5.00	4.00
Ranking	III	I	II
Requirement of Machine Hours (Hrs.)	3	5	4
Contribution per hour (Rs.)	13.33	12.00	30.00
Ranking	II	III	I

It is clear from the above ranking(s):-

I. Contribution per Unit is maximum in case of product Q & R.

II. Contribution per Kg. of Raw Material also maximum in case of product Q & R.

III. Contribution per Machine Hour is maximum in case of product P & R.

So product R is common in all cases and priority shall be given for production of ' R'. Balance resources should be divided between other two products P & Q.

(4 MARKS)

Statement Showing Balance Resources for Product P & Q

Resources	**Maximum Availability (a)**	**Maximum Production R (b)**	**Consumption of Resources p.u. (c)**	**Total Cons. (d) = (b) x (c)**	**Balance (a) - (d)**
Material	50,000 Kg.	750	30 Kg.	22,500 Kg.	27,500 Kg.
Machine Hrs.	9,200 Hrs.	750	4 Hrs.	3,000 Hrs.	6,200 Hrs.

The production of P & Q may be calculated with the help of following equations by utilizing balance resources:

$$20P + 12Q = 27,500 \quad \ldots(i)$$

$$3P + 5Q = 6,200 \quad \ldots(ii)$$

Then,

$30P + 18Q = 41,250$

equation (i) multiplied by 1.5

$30P + 50Q = 62,000$

equation (ii) multiplied by 10

$$-32Q = -20,750$$

$$Q = 648.43 \text{ i.e. } 648 \text{ units}$$

Putting the value of Y in equation (ii)

$$3P + (5 \times 648) = 6,200$$

Or $3P = 2,960$

Or $P = 986$ units

So the of Product Mix is

P= 986 units; Q = 648 units; R = 750 units

(6 MARKS)

ANSWER – 5

Alternative – 1 with No Strike : (Refer W.N. 2, 3)

Cost of Settlement is 15% Increase i.e. Rs. 216 per unit

Annual Cost of Settlement = 54,000 units ×Rs. 216

= Rs. 1, 16, 64,000

Alternative 2 i.e. if Strike Goes Ahead : (Refer W.N. – 1, 2, 3)

Extra Cost	**(Rs.)**
Annual Incremental Labour Cost (Ex. Strike Days Production) [{54,000 units – (25 Days × 180 units per Day)} ×Rs. 144.00]	71,28,000
Loss of Contribution due to loss of sales [1,300 units ×Rs. 2,200]	28,60,000
Incremental Labour Cost for Balance 3,200 units [(25 Days × 180 units per Day) – 1,300 units} ×Rs. 144.00	4,60,800
Overtime Premium [3,200 units × 1,584 × 0.5]	25,34,400
Payment for Efficiency [3,200 units × 1/9 × 1,584 × 1.5]	8,44,800

Additional Fixed Cost	1,00,000
	1,39,28,000

If there is no strike, it will yield a financial benefit of Rs. 22,64,000 (Rs. 1,39,28,000 – Rs. 1,16,64,000). Management should accept union's demand.

(4 MARKS)

Working Note

(1) Statement Showing Contribution per unit of 'DBC'

	Rs.
Selling Price	6,000
Less : Variable Costs :	
Labour Cost	1,440
Production Ex. Wages (Rs. 3,600 – Rs. 1,440)	2,160
Distribution	200
Contribution	2,200

(2) Calculation of Labour Cost

Direct Labour (40% of production costs of Rs. 3,600) = Rs. 1,440 per unit

With 15% Increase, Revised Labour Cost (Rs. 1,440 + Rs. 216)= Rs. 1,656

With 10% Increase, Revised Labour Cost (Rs. 1,440 + Rs. 144)= Rs. 1,584

(3) Statement Showing Budgeted Production

Total Time in a Day : (8 hrs. × 60 minutes)	= 480 minutes
Less : Idle Time	= 48 minutes
Coffee Break	= 20 minutes
Instructions	= 22 minutes
Training	= 30 minutes
Productive Time per day	=360 minutes
Therefore, 'DBC' to be produced per man per day : (360 / 180 × 1)	= 2 units

Since 'DBC' are produced at the rate of 2 "DBC' per man day, so total yearly production will be 54,000 units (2 units× 90 men × 300 days) of 'DBC'

→ This problem has been solved by comparing **'Existing Situation'** with both 'Alternatives **(Strike or Non – Strike)** independently. However, this problem can also be solved by comparing 'Alternatives (Strike or None – Strike)' only and final answer would be the same. Students may also solve this problem by taking 'Total Approach' instead of 'Incremental Approach'

(6 MARKS)