SUGGESTED SOLUTION

FINAL Nov. 2019 EXAM

SUBJECT- SCMPE

Test Code - FNJ 7121

BRANCH - () (Date :)

Question 1:

Date 30 – July – 2018

Dear Sirs,

Re : The economy, efficiency and effectiveness of beach cleaning activities

(i)   Economy and efficiency audit of an operation focuses on the consumption of resources and the output achieved. Economy assesses the financial aspects of the activity. i.e. are the objectives of the activity being achieved at reasonable cost ? Efficiency assesses the volume of input consumed to derive the desired output i.e. are the resources and funds being consumed to get maximum output ?

To look at **Economy of Operations**, cleaning expenses need to be bifurcated into payments made to the contractor and the expenses of emptying waste from bins. Any further subcategories of these expenses, like labour, material, disposal van expenses etc. also need to be collated from the accounting or cost records. These then have to be compared to the budgets that were approved by the government of Silver Sands. The competitive tendering process can be reviewed to ensure that the contractor getting the order is offering the required quality of service at the lowest price. If the quality of cleaning has been achieved, by staying within budget, the operation is economical. However, if the actual exceed the budget, the government has to compare them with cost of similar cleaning activities carried by neighbouring towns. On comparison, if Silver Sands operations are expensive compared to other towns, it indicates that not only are the operations uneconomical they may not be efficient either.

Efficiency of Operations can be determined by checking the log records maintained for beach cleaning by the contractor and municipality workers. These would have detailed of activities carried out and the resources utilized for each of them. For each of these services (beach cleaning and emptying out bins), the cost drivers can be identified and certain metrics can be developed for analysis. For example, the cost of running the tractors can be divided by the total number of tractors operated to get the cost of operations per tractor or alternatively, by the kilometres of beach cleaned to arrive at a tractor – kilometre rate. While analysing these activities, certain operational considerations have to be given. For example, certain stretches of the beaches may take more time or resources to clean due to issues like rocks or soft sand. Therefore, if resources for operations disproportionate for certain parts of the beaches, the cost of maintaining those stretches need to be worked out. Data to get this information will depend on the extent of detailed maintained in the logs. This information has to be tracked over some period of time in order to understand trends in operations and related expenses.

The data collected from the mobile messaging system should also be investigated. How often and in what stretches of the beach are complaints frequent or maximum? Reasons for these lapses need to be taken from the contractor (for beach cleaning operation) and the concerned department (for emptying bins) in order to find out whether resources are being employed properly.

On this basis, deviations and exceptions should be investigated. The local government can then decide if there can be alternate sites along the coastline that may be more economical and efficient to operate.

(ii)   An audit about Effectiveness of Operations would focus how the actual cleanliness of beaches compares with the desired level as laid out in the policy initiative. To assess whether performance has been met, clear guidelines and metrics have to be defined during policy implementation.

To begin with, it should be clear as to what constitutes litter. From an operational angle, it would be difficult to clean out every bit of paper lying on the beach. However, it is possible to pick up every soft drink aluminium can. Hence, the government authorities must be clear on what constitutes litter? Which are the refuse that must be cleared within exception (example food refuse, animal

droppings, glass bottles, tin cans, trash bins etc.) and tolerance level for certain other types of litter (e.g. Paper, seaweed etc.) that may get left behind even after cleaning. Quantity of waste collected would be the indicator to make the above assessment.

Certain other parameters like safety standards can also be defined. Safety problems could be cuts from sharp objects like glass, incidents of vector bome diseases in the area or health problems from polluted sea water. Assessment has to be made whether these standards have been met.

For this, the primary source of information about cleanliness would be feedback from the beach patrons. These could be in the form of complaints received directly or those through the mobile messaging system would provide data to work out the metrics. This would be an indicator of "customer satisfaction". Other inputs could also be suggestions given by the patrons about ways to improve cleanliness on the beach.

Observation by making surprise visits to inspect the beaches immediately after the cleaning operations would also provide sufficient evidence about the effectiveness of operations.

(iii) **Challenges involved** in assessment of effectiveness would be :
- (a) Defining standards about what constitutes litter and acceptable level of cleanliness ? These are subjective guidelines, the perception of which may differ from person to person.
- (b) Beach patrons also play an important role in making this initiative effective. There has to be a conscious civic sense of duty not to litter, failing which this initiative will most likely be ineffective. Therefore, while measuring performance for effectiveness, collection of more litter does not necessarily indicate effective operations. More litter requires more cleaning and more resources, therefore is actually not a positive indicator of effectiveness. On the contrary, in the long run, lesser litter collected to maintain desired level of cleanliness would be a good indicator of effectiveness.

(iv) The outcome of the audits can indicate achievement any or none of the three parameters of economy, efficiency and effectiveness of the beach cleaning operation. To form an integrated conclusion based on the different outcomes of individual audits, the audit team may consider the following guidelines :
- (a) Has the objective of the cleaning operation been achieved as per the guidelines in the relevant policy ? i.e. have the operations been effective?
- (b) If the answer to (a) is yes, are the expenses within budget. If so, then the operations are economical and efficient. Given that the operations have been effective at the same time economy and efficiency have been achieved, the team can conclude that the cleaning operations policy has been a success.

  A cost – over run can also be justified if the operations have been effective. In that case, the audit team has to conclude whether all expenses incurred are indeed justified and that the resources have been put to the best possible use. If not, can the operations be made more economical or efficient ?

- (c) If the answer to (a) is no, the operation has not been effective, then is the difference from the target marginal or huge ? If the operations have not been entirely effective, but only by a marginal gap say 95% success, then analysis of expenses can be made similar to the point (b) mentioned above. However, if the operations have been ineffective to a larger extent, then the cleaning drive initiative has been ineffective. The government has to look at alternate solutions of tackling the problem. These could include imposing heavy penalty for littering, requesting for more funding from the state government to employ better resources etc.

Therefore, it can be seen that achievement of one objective does not automatically lead to achievement of other objectives. A holistic approach would be needed to draw conclusions about the performance of the cleaning operations.

Should you have any further queries, please do not hesitate to ask.

Yours Faithfully

Management Accountant.   **(20 marks)**

Answer 2:

(i)   Product Wise Profitability as per Original Allocation Methodology

(Figures in Rs. per kilogram of fertilizer produced)

Particulars	Grade A	Grade B	Total
Selling price	280	400	680
Direct Material (Refer Table 1)	114	186	300
Direct Labour (Refer Table 1)	76	124	200
Overheads (allocated equally)	75	75	150
Total Expenses	265	385	650
Profit	15	15	30
Profitability	5.36%	3.75%	×

(3 marks)

Table 1 Allocation of Direct Materials and Labour as per Cost Centre and Product

Particulars	CC1			CC2			CC3			Total for the company		
	A	B	CC Total	A	B	CC Total	A	B	CC Total	Gr. A	Gr. B	Grand Total
Direct material	27	63	90	60	60	120	27	63	90	114	186	300
Direct Labour	18	42	60	40	40	80	18	42	60	76	124	200

→ Product Wise Profitability (activity based costing using environmental management accounting) requires the following steps :
1. Overhead expenses of Rs. 150 per kilogram of fertilizer produced be first bifurcated into incinerator costs and other overhead costs.
2. Incinerator costs of Rs. 90 per kilogram of fertilizer needs to be allocated first to the cost centres. This is done based on the waste generated at each cost centre. The individual cost allocated to each cost centre is again allocated to products based on the waste generated at each cost centre by each product. Refer part a of table 2 for detailed calculations.
3. As mentioned in the problem, other overhead costs are allocated to each product at each cost centre level equally. Refer part b of table 2 for detailed calculations.

4. The above allocations to each product at a cost centre level is then summed up to get the product wise overhead cost allocation. Refer part c of table 2 for detailed calculations.

(3 marks)

Accordingly, the **Revised Product Profitability** would be as follows:

(Figures in Rs. per kilogram of fertilizer produced)

Particulars	Grade A	Grade B	Total
Selling price	280	400	680
Less : Direct Material (Refer table 1)	114	186	300
Less : Direct Labour (refer table 1)	76	124	200
Less : Overheads (refer table 2)	66	84	150
Profit	24	6	30
Profitability	8.57%	1.50%	$\times$

(2 marks)

Table 2 Allocation of Overhead Expenses to each Cost Centre and Product

(Figures in Rs. per kilogram of fertilizer produced)

Product Waste Produced (in tonnes per annum)	CC1	CC2	CC3	Total
Grade A	2	3	1	6
Grade B	2	2	5	9
Total Waste (in tonnes)	4	5	6	15
Incinerator Cost Allocated to Cost Centres	24	30	36	90
(based on waste generated)				
Other Overhead Expenses	20	20	20	60
Total Cost Centre Wise Overhead Cost	44	50	56	150
Part A : Allocation of Incinerator Cost from Cost Centre to each product (based on waste produced at each cost centre by each product)				
Product	CC1	CC2	CC3	Total
Grade A	12	18	6	36
Grade B	12	12	30	54
Total Incinerator Cost	24	30	36	90
Part B : Allocation of Other Overhead Cost from Cost Centre to each product				
Product	CC1	CC2	CC3	Total
Grade A	10	10	10	30
Grade B	10	10	10	30
Total Other Overhead Cost	20	20	20	60
Part C : Total Overhead Cost (Cost centre and product Wise i.e. part a + b)				
Product	CC1	CC2	CC3	Total
Grade A	22	28	16	66
Grade B	22	22	40	84
Total Overhead Cost	44	50	56	150

(4 marks)

Summarizing Product profitability as per both methods :

Product	(Profit in Rs. per kg of fertilizer produced)		Profit %	
	Original Method	ABC (as per EMA) Method	Original Method	ABC (as per EMA) Method
Grade A	15	24	5.36%	8.57%
Grade B	15	6	3.75%	1.50%

(1 mark)

(ii) As summarized above, originally the profit generated from Grade A and Grade B products, was Rs. 15 per kilogram. Grade A was the more profitable product giving return of 5.36% compared to Grade B's return of 3.75%. This has been calculated by allocating overheads equally to Grade A and B.

During the year, 15 tons of waste is produced during the manufacturing process. Grade B fertilizer produces more waste that accounts for 60% of the waste. Therefore, Grade b should bear higher amount of the incinerator cost compared to Grade A. Allocation based on this premise, dramatically changes the profitability of the products. As calculated above, Grade A fertilizer, due to lower incinerator cost allocation, generates a profit of Rs. 24 per kilogram of fertilizer. Grade B's profits accordingly are lower, since the product generates ore waste and has to bear a larger share of clean – up expenses. Profitability of Grade A increases to 8.57% while Grade B falls dramatically to 1.50%.

(3 marks)

(iii) The company can draw a number of conclusions from this analysis of overhead costs as per environmental management accounting. This analysis has helped the company reach the conclusion that Grade B fertilizer produces more waste. The company could adopt either of the following approaches:

(a) To maintain the same level of profitability, the company can increase the price of Grade B by another Rs. 9 per kilogram. This is a 2.25% increase in the sale price of Grade B fertilizer. Depending on the market for this grade of fertilizer, the company has to decide whether to increase the price of the product. While a price increase may be possible if the company has a strong market hold, it might be difficult if competition in the market is high. Or

(b) The other approach, a more sustainable approach that is the aim of environmental management accounting, would be to reduce the waste produced in the manufacturing process. This analysis, has quantified the waste generated in the process. Better manufacturing techniques, could save the company incinerator costs that would yield better profits for the company. **(4 marks)**

Answer 3:

(A)

Statement Showing 'Pareto Analysis'

Model	Sales (Rs. '000)	% of Total Sales	Cumulative Total	Model	Cont. (Rs.'000)	% of Total Cont.	Cumulative Total%
Pareto Analysis Sales				**Pareto Analysis Contribution**			
A001	5,100	35.05%	35.05%	B002	690	30.87%	30.87%
B002	3,000	20.62%	55.67%	E005	435	19.47%	50.34%
C003	2,100	14.43%	70.10%	C003	300	13.42%	63.76%

D004	1,800	12.37%	82.47%	D004	255	11.41%	75.17%
E005	1,050	7.22%	89.69%	F006	195	8.73%*	83.90%
F006	750	5.15%	94.84%	A001	180	8.05%	91.95%
G007	450	3.09%	97.93%	G007	120	5.37%	97.32%
H008	225	1.55%	99.48%	I009	45	2.01%	99.33%
I009	75	0.52%	100.00%	H008	15	0.67%	100.00%
	14,550	100.00%			2,235	100.00%	

(*) Rounding – off difference adjusted. **(5 marks)**

Recommendations

Pareto Analysis is a rule that recommends focus on most important aspects of the decision making in order to simplify the process of decision making. The very purpose of this analysis is to direct attention and efforts of management to the product or area where best returns can be achieved by taking appropriate actions.

Pareto Analysis is based on the 80/20 rule which implies that 20% of the products account for 80% of the revenue. But this is not the fixed percentage rule; in general business sense it means that a few of the products, goods or customers may make up most of the value for the firm.

In present case, five models namely A001, B002, C003, D004 account for 80% of total sales where as 80% of the company's contribution is derived from models B002, E005, C003, D004 and F006.

Models B002 and E005 together account for 50.34% of total contribution but having only 27.84% share in total sales. So, these two models are the key models and should be the top priority of management. Both C003 and D004 are among the models giving 80% of total contribution as well as 80% of total sales so; they can also be clubbed with B002 and E005 as key models. Management of the company should allocate maximum resources to these four models.

Model F006 features among the models giving 80% of total contribution with relatively lower share in total sales. Management should focus on its promotional activities.

Model A001 accounts for 35.05% of total sales with only 8.05% share in total contribution. Company should review its pricing structure to enhance its contribution.

Models G007, H008 and I009 have lower share in both total sales as well as contribution. Company can delegate the pricing decision of these models to the lower levels of management, thus freeing themselves to focus on the pricing decisions for key models. **(5 marks)**

(B)

As per the statement given in the problem, Flight GP-022 incurs a net (loss) of Rs. 158,100. This is the net result of revenue less costs. Revenue is entirely variable depending upon passenger occupancy. Costs are both variable and fixed nature. To analyze the impact of dropping flight GP-022, we need to *re-compute* net gain/ (loss) that Golden Pacific earns when it operates the flight **based on relevant costing principles**.

Net Gain/ (Loss)

= Revenue earned from flight operations *less* Variable costs of operation

Revenue earned is the ticket revenue earned from flight operations of GP-022, this is entirely variable. Variable costs of flight operations are those expenses that would be incurred only when

the flight is operated. These include variable expenses per passenger, salaries flight assistants, overnight costs for flight crew and assistants, fuel for aircraft, a third portion of flight insurance that is specifically related to this flight sector and flight promotion expense. These are expenses that will not be incurred if the flight is not operated. Hence, relevant for decision making.

Other expenses like salaries of flight crew and hanger parking fees for aircraft are fixed expenses that will be incurred even if the flight does not operate. Loading and flight preparation expense is an allocated cost that will continue to be incurred even if flight GP-022 does not operate.

Depreciation of aircraft and liability insurance expense (2/3rd portion not related to a specific flight sector) are sunk costs. These expenses have already been incurred and hence are irrelevant to decision making. Therefore, these fixed, allocated and sunk expenses are ignored while analyzing the decision whether to continue operating flight GP-022.

(5 marks)

Flight GP-022 Statement Showing Net Gain/ (Loss)

	Rs.	Rs.
Contribution Margin *if the flight is continued*		5,88,000
Less: Flight Costs		
Flight Promotion	28,000	
Fuel for Aircraft	2,38,000	
Liability Insurance (1/3 × Rs.1,47,000)	49,000	
Salaries, Flight Assistants	31,500	
Overnight Costs for Flight Crew and Assistants	12,600	3,59,100
Net Gain/ (Loss)		2,28,900

If Golden Pacific Airlines Ltd. discontinues flight GP-022, profits will reduce by Rs. 2,28,900. The statement showing loss in operations of Rs. 158,100 is misleading for decision making purpose because it accounts for costs that are fixed and irrelevant. However, since flight GP-022 yields a net gain of Rs. 2,28,900, flight operations should continue. **(5 marks)**

Answer 4:

(A)

Range of Transfer Price

The company gets a net benefit of Rs. 150,000 per month by procuring the lenses internally. Therefore, the divisional managers should accept the transfer pricing model. At the same time, neither division should be at a loss due to this arrangement. When the transfer price is Rs. 120 per lens, Division 'A' bears the loss, which will impact assessment of the division's performance. Therefore, an acceptable range for transfer price should be worked out. This can be done as below: **(1 mark)**

When the supplying division operates at full capacity, the range for transfer pricing would be-

(a) Minimum transfer price = marginal cost p.u. + opportunity cost p.u.

Since the supplying division is operating at full capacity, it has no incentive to sell the goods to the purchasing division at a price lower than the market price. If the internal order is accepted, capacity is diverted towards this sale. Hence the supplying division would additionally charge the lost contribution from external sales that had to be curtailed. By doing so, the division will be indifferent whether the sale is an external or internal one. **(3 marks)**

(b) Maximum transfer price = Lower of net marginal revenue and the external buy- in price.

Therefore, the minimum transfer price (which would be set by Division 'A', the supplier) = marginal cost per lens + opportunity cost per lens = Rs. 110 + Rs. 30 per lens = Rs. 140 per lens. In other words, the minimum transfer price would be the external sale price of each lens.

The maximum transfer price (which would be determined by Division 'B', the procurer) = lower of net marginal revenue and the external buy-in price.

Net marginal revenue would be the revenue per one additional sale. Net marginal revenue per camera = marginal revenue – marginal cost (i.e. variable cost excluding the cost of the lens) to Division 'B' = Rs. 410 - Rs. (150+30) = Rs. 410 - Rs. 180 = Rs. 230 per camera. This is the maximum price that Division 'B' can pay for the lens, without incurring any loss. As mentioned before, fixed cost is ignored for this analysis.

The current external procurement price is Rs. 170 per lens.

Therefore, the maximum price that Division 'B' would be willing to pay = lower of net marginal revenue (Rs. 230 per camera) or external procurement cost (Rs. 170 per lens). Therefore, Division 'B' would pay a maximum price, equivalent to the current external price of Rs. 170 per lens. It will not pay Division 'A', price more than the external market price for a lens.

Therefore, the acceptable range for transfer price would range from a minimum of Rs. 140 per lens and maximum of Rs. 170 per lens. The managers may be given autonomy to negotiate a mutually acceptable transfer price between this range. **(4 marks)**

(B)

Budget Profitability Statement

	D(Rs.)	F(Rs.)	Total (Rs.)
Sales	52,68,904 (Rs. 38,50,000 × 131.591% × 1.04)	41,92,664 (Rs. 30,20,000 × 132.219% ×1.05)	94,61,568
Variable Cost :			
Material	14,89,479 (Rs. 10,78,000 × 131.591% × 1.05)	12,57,799 (Rs. 9,06,000 × 132.219% ×1.05)	27,47,278
Labour	12,15,900 (Rs. 9,24,000 + Rs. 4,86,500 × 60%)	7,98,600 (Rs. 6,04,000 + Rs. 4,86,500 × 40)	20,14,500
Overheads	9,72,721 (Rs. 7,39,200× 131.591%)	6,38,882 (Rs. 4,83,200× 132.219%)	16,11,603
Contribution	15,90,804	14,97,383	30,88,187
Fixed Overheads			13,56,000
Profit			17,31,687

(5 marks)

$$\left(\frac{Rs.12,15,900 - Rs.9,24,000}{Rs.9,24,000}\right) \times 100 = 31.591\% \;;\left(\frac{Rs.7,98,600 - Rs.6,04,000}{Rs.6,04,000}\right) \times 100 = 32.219\%$$

(1 mark)

(ii) Sales Volume of both products D and F has been increased by 31.59% and 32.22% respectively. Due to change in price of cost and revenue components, Profit Volume Ratio (PVR) of product D has been increased to 30.19% from 28.80% while for product F, it has been increased to 35.71% from 34%. However, change in PVR for product F is slightly higher. Overall, discontinuing product E and diverting the labour and production facilities to Product D and F have increased the profitability of the company.

$$\left(\frac{Rs.11,08,800}{Rs.38,50,000}\right) \times 100 = 28.80\%; \left(\frac{Rs.15,90,804}{Rs.52,68,904}\right) \times 100 = 30.192\%$$

$$\left(\frac{Rs.10,26,800}{Rs.30,20,000}\right) \times 100 = 34.00\%; \left(\frac{Rs.14,97,400}{Rs.41,92,696}\right) \times 100 = 35.714\% \qquad \textbf{(3 marks)}$$

(iii) If company transfers 60% of labour to product F and balance to d, total contribution will be increased to Rs. 31,43,324.522 (Rs. 14,63,503.047 + Rs. 16,79,821.475) which is 1.785% higher than contribution arrived in point (ii) due to shift of higher proportion of labour of product E to the product yielding higher PVR.

Hence, it is advisable to divert higher proportion of labour to product F, provided there is sufficient market for the product F.

$$\left(\frac{Rs.15,90,804}{Rs.12,15,900} \times Rs.\,11,18,600\right) = Rs.\,14,63,503.047;$$

$$\left(\frac{Rs.14,97,383}{Rs.7,98,600} \times Rs.\,8,95,900\right) = Rs.\,16,79,821.475 \qquad \textbf{(3 marks)}$$

→ **Nearby Figures are also possible due to rounding off difference.**

Answer 5:

(A)

(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

(3 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. **(5 marks)**

(B)

(i)   ROI

Division 'Y'

Controllable Profit = Rs. 5,290K

Net Assets = Rs. 19,520k + Rs. 4,960k – Rs. 5,920k = Rs. 18,560K

ROI = 28.5%

Division 'D'

Controllable profit = Rs. 3,940K

Net Assets = Rs. 29,960K + Rs. 6,520K – Rs. 2,800K = Rs. 33,680K

ROI = 11.7%

In computation of ROI of both division, controllable profit has been taken into consideration. The reason behind this is that the Head Office costs are not controllable and responsibility accounting considers that managers should only be held responsible for costs over which they have control. The assets figures being used also depend on the same principal. Figures of current assets and the current liabilities have been taken into consideration as they are such items over which managers have complete control. **(4 marks)**

(ii)   Bonus

Bonus to be paid for each percentage point = Rs. 7,20,000 × 3% = Rs. 21,600

Maximum Bonus = Rs. 7,20,000 × 20% = Rs. 1,44,000.

Division 'Y'

ROI = 28.5% (16 whole percentage points above minimum ROI)

16 × Rs. 21,600 = Rs. 3,45,600

Therefore, manager will be paid the bonus of Rs. 1,44,000 (max.)

Division 'D'

ROI = 11.7% (Zero, percentage point above minimum)

Therefore Bonus = NIL   **(2 marks)**

(iii)   **Discussion**

FAI will not receive any bonus since he has not earned any point above minimum percentage. This is due to the large asset base on which the ROI figure has been computed. Total assets of Division 'D' are almost double the total assets of Division 'Y'. The major reason behind this is that Division 'D' invested Rs. 13.6 million in new equipment during the year. If this investment were not made, net assets would have been only Rs. 20.08 million and the ROI for Division 'D' would have been 19.62% resulting in payment of a bonus Rs. 1,44,000 (7 × Rs. 21,600 = Rs. 1,51,200; subject to maximum of Rs. 1,44,000) rather than the nothing. FAI is being penalized for making decisions which are in the best interests of his division. It is very surprising that he decided to invest where he knew that he would receive lesser bonus subsequently. He acted in the best interests of the BYD altogether. On the other hand, HAI has taken benefit from the fact that he has not invested anything even though it was needed for computer system updation. This is an example of sub – optimal decision making.

Further, Division 'Y''s trade payables are over double those of Division 'D'. In part, one would expect this due to higher sales (almost 66% more than Division 'D') and low cash levels at Division 'Y'. Higher trade payable leads to reduction in net assets figures. The fact that BYD is rewarding HAI with bonus, even though relationships with suppliers may be badly affected, is again a case of sub – optimal decision making.

If the profit margin (excluding head office cost) as percentage of sales is calculated, it comes to 18.24% for Division 'Y' and 22.64% for Division 'D'. Therefore it can be seen that Division 'D' is performing better if capital employed is ignored. ROI is simply making the division 'D''s performance worse.

FAI might feel extremely disappointed by getting nothing and in the future, he may opt to postpone the investment to increase the bonus. Non – investing in new technology and equipment will mean that the BYD will not be kept updated with industry changes and its overall future competitiveness will be affected.

Briefly, the use of ROI is resulting in sub – optimal decision making and a lack of goal congruence i.e. want is good for the managers is not good for the company and vice versa. Fortunately, Division 'D''s manager still seems to be acting for the benefit of the BYD but the other manager is not. The fact that one manager is receiving a much bigger bonus than the other is not justifiable here and may result in conflict in long run. This is disappointing for the company especially in the situation when the divisions need to work in unison.   **(6 marks)**

Answer 6:

(A)

The incremental cost associated with the IMAX show appears to be Rs.10,000 i.e. cost of running the show. The allocated fixed cost per show is not relevant because the total amount of fixed costs for the year will not change as a result of the special show. Further, the stated ticket prices are not relevant because the show will tak e place at 08:30 AM when the IMAX is not usually open – thus, the students will not be displacing any regular visitors. Based on the financial

data provided, the minimum price quote appears to be Rs.10,000.

Aayla should consider the following factors:

- Does the station have a souvenir shop and/or cafeteria?
- If so, many students are likely to buy food and/or souvenir items, thereby increasing the station's contribution. In turn, this would reduce the minimum price quote.
- What is the impact on future revenue?
- After seeing the show, many students may return with their parents, thereby increasing future revenue.
- Are there costs linked with the special showing that are not included in the
- Rs.10,000 variable cost number?
- For example, will the station have to pay an overtime premium.
- Aayla should also consider the educational mission of the Planetarium Station. Such shows directly contribute to this mission, the station, and, hopefully, the betterment of the students. The special shows may be an excellent way to expose some students to earth science – these students may have never gone through the Planetarium Station if it were not for the school excursion.
- Overall, the "best" price to charge is unclear and requires some judgment as Aayla needs to balance an array of financial and non-financial factors. **(10 marks)**

(B)

COMPUTATION OF VARIANCES

Traditional Variance (Actual Vs Original Budget)

Usage Variance = (Standard Quantity – Actual Quantity) × Standard Price

= (2,500 Kg – 2,700 Kg) × Rs. 1.50

= Rs. 300 (A)

Price Variance = (Standard Price – Actual Price) × Actual Quantity

= (Rs. 1.50 – Rs. 2.40) × 2,700 Kg

= Rs. 2,430 (A)

Total Variance = Rs. 300 (A) + Rs. 2,430 (A) = Rs. 2,730 (A) **(3 marks)**

Operational Variance (Actual Vs Revised)

Usage Variance = (2,500 Kg – 2,700 Kg) × Rs. 2.25

= Rs. 450 (A)

Price Variance = (Rs. 2.25 – Rs. 2.40) × 2,700 Kg

= Rs. 405 (A)

Total Variance = Rs. 450 (A) + Rs. 405 (A) = Rs. 855 (A) **(3 marks)**

Planning Variance (Revised Vs Original Budget)

Controllable Variance = (Rs. 2.00 – Rs. 2.25) × 2,500 Kg

= 625 (A)

Uncontrollable Variance

$$= (Rs.\ 1.50 - Rs.\ 2.00) \times 2,500\ Kg$$

$$= 1,250\ (A)$$

Total Variance $\quad = Rs.\ 625\ (A) + Rs.\ 1,250\ (A) = Rs.\ 1,875\ (A)$ **(3 marks)**

Traditional Variance = Operational Variance + Planning Variance

$$= 855\ (A) + 1,875\ (A) = 2,730\ (A)$$ **(1 mark)**