SUGGESTED ANSWERS TO QUESTIONS

FINAL EXAMINATION

GROUP - III

(SYLLABUS 2016)

DECEMBER – 2021

Paper-15 : STRATEGIC COST MANAGEMENT – DECISION MAKING

Time Allowed : 3 Hours | Full Marks : 100

Section A MCQ 20X1= 20 Marks

Q.1 In cost-plus pricing, the markup consists of

Ans
1. total cost and desired ROI.
2. selling and administrative costs.
3. manufacturing costs.
✔ 4. desired ROI

Q.2 A manufacturing company has the following information pertaining to a normalmonthly production of 10,000 units of a product.
Standard factory overhead rates are based on a normal monthly volume of onestandard direct hour per unit.
Standard factory overhead rates per direct labor hour are:

Fixed	Rs. 6.00
Variable	Rs. 10.00
	Rs. 16.00
Units actually produced in current month	9,000 units
Actual factory overhead costs incurred (Includes Rs. 70,000 fixed)	Rs. 156,000
Actual direct labor hours	9,000 hours

The variable overhead spending variance is

Ans
1. Rs.0
2. Rs.10,000 (F)
✔ 3. Rs.4,000 (F)
4. Rs.86,000 (A)

Q.3 A factory is setting up a special inspection at the supply point of raw materials at Rs. 80,000. Consequent to this, there is lesser number of returns from customers. Thesegoods used to be sold for Rs. 1,00,000 and variable costs are Rs. 80,000. The changein quality costs are

Ans
1. Decrease by Rs. 80,000
2. Decrease by Rs. 60,000
3. Decrease by Rs. 20,000
✔ 4. No change

Q.4 Companies that would benefit from back-flush costing include companies

Ans
1. None of these.
2. whose inventories vary from period to period.
✔ 3. which have fast manufacturing lead times.
4. companies that require audit trails.

Q.5 A learning curve is a function

Ans
1. where unit costs increase as productivity increases.
2. that increases at a greater rate as workers become more familiar with their tasks.
3. that is linear.
✔ 4. that measures the decline in labor-hours per unit due to workers becoming better at a job.

Q.6 Which of the following is TRUE about the theory of constraints?

Ans
1. TOC recognizes that lower inventories means slower response to customers.
✔ 2. TOC recognizes that lowering inventory decreases carrying costs and thus decreases operating expenses and improves net income.
3. TOC recognizes that lower inventories means more defects.
4. TOC recognizes that EOQ is important.

Q.7 Activities required to design, develop, produce, market, distribute, and service aproduct are known as

Ans
1. target activities.
✔ 2. value-chain activities.
3. whole life activities.
4. overhead.

Q.8 Only direct materials, direct labor, and variable manufacturing overhead costs are considered product costs when using

Ans
1. absorption costing.
2. full costing.
✔ 3. variable costing.
4. product costing.

Q.9 When there is excess capacity, it makes sense to accept a one-time-only special orderfor less than the current selling price when

Ans
✔ 1. incremental revenues exceed incremental costs.
2. additional fixed costs need not be incurred to accommodate the order.
3. there is a positive contribution per unit of the product under normal capacity andspare capacity
4. the special order is from a normal customer.

Q.10 A company that is a price-taker would most likely use which of the following methods?

Ans
✔ 1. Target costing
2. Cost plus pricing, contribution approach
3. Cost plus pricing, absorption approach
4. Time-and-material pricing

Q.11 To complete the first setup on a new machine took an employee 200 minutes. Using an 80% incremental unit-time learning model indicates that the second setup on the newmachine is expected to take

Ans
✔ 1. 120 minutes.
2. 160 minutes.
3. 60 minutes
4. 80 minutes.

Q.12 The following will be the appropriate action to finish a project early

Ans
1. Crash activities on the non critical path so that they become critical
2. Crash activities on the non critical paths so that they remain non critical
3. Crash activities on the critical path so that they become non critical
✔ 4. Crash activities on the critical paths such that the critical paths remain critical

Q.13 If the unit level of inventory increases during an accounting period, then

Ans
1. operating income will be the same under absorption costing and variable costing.
2. the exact effect on operating income cannot be determined.
✔ 3. more operating income will be reported under absorption costing than variablecosting.
4. less operating income will be reported under absorption costing than variable costing.

Q.14 In a transportation matrix (where Ri are rows and Cj are columns), the second allocation under the North West Corner Rule can be

Ans
1. R1C2
2. None of these
3. R2C3
4. R1C3

Q.15 is the difference between the sales price needed to capture a predetermined market share and the desired profit per unit.

Ans
1. Gross profit
2. Target cost
3. Target price
4. None of these.

Q.16 Liability claims is an example of

Ans
1. prevention costs.
2. appraisal costs.
3. external failure costs.
4. internal failure costs.

Q.17 The_____is a period of time when sales increase at a decreasing rate.

Ans
1. maturity stage
2. growth stage
3. introduction stage
4. decline stage

Q.18 NM paid Rs.5,30,000 for a machine used to powder wheat. The machine can be sold for Rs.1,30,000. The sale value of wheat is Rs 8,00,000 and its variable cost is Rs.4,50,000.The opportunity cost of producing wheat flour is

Ans
1. Rs. 5,30,000
2. Rs. 3,50,000
3. Rs. 8,00,000
4. Rs. 1,30,000

Q.19 Which of the following will always be a relevant cost?

Ans
1. Fixed cost
2. Opportunity cost
3. Variable cost
4. Sunk cost

Q.20 The operational activity of setting up equipment is classified as a

Ans
1. unit-level activity.
2. facility-level activity.
3. batch-level activity.
4. product-level activity.

Q.1 **MK Company incurred the following costs for 60,000 units: Variable costs Rs.18,00,000 Fixed costs Rs. 24,00,000 MK has received a special order from a foreign company for 5,000 units. There is sufficient capacity to fulfill the order without jeopardizing regular sales. Filling the order will require spending an additional Rs.85000 for shipping.**
If MK wants to break even on the order, what should the unit sales price be?

Answer: Rs. 47

Q.2 **At KL Company, the cost of the personnel department has always been charged to production departments based upon number of employees. Recently, opinions gathered from the department managers indicate that the number of new hires might be a better predictor of personnel costs.**
Total personnel department costs are Rs.200,000.

Department	A	B	C
Number of employees	30	270	100
The number of new hires	8	12	5

If number of new hires is considered the cost driver, what amount of personnel costs will be allocated to Department A?

Answer: Rs. 64,000

Q.3 **Spoilage is an example of_____quality cost**

Answer: Internal failure

Q.4 **During the lockdown days, a hospital that was running to capacity in terms of medical staff available on regular shifts proposes to share profits with staff that are willing to work extra time. Can this be termed lean management?**

Answer: Yes. Planning from a lean perspective-invest in people

Q.5 **A hand crafted product is produced in a factory taking 8 hours per unit against the standard set at 9 hours. The production manager is trying to find means of reducing the standard to lesser hours by improving material handling, etc. This measure is considered as (Cost Reduction/ Cost Control)**

Answer: Cost Reduction

Q.6 **Hardware Company reported the following results from the sale of 5,000 hammers in May: sales Rs. 200,000, variable costs Rs.120,000, fixed costs Rs.60,000, and net income Rs.20,000. Assume that Hardware increases the selling price of hammers by 10% on June 1. How many hammers will have to be sold in June to maintain the same level of net income?**

Answer: 4,000

Q.7 **A factory is trying to establish standard time for a certain job. Workers arrive at 8:00 am, during the day take tea and lunch breaks for 1 ½ hours, machines need set up for ½ an hour and workers leave by 4 p.m A worker can ideally produce a unit of output if he is at his job for two hours. How much is the standard labour hour per unit?**

Answer: 2.67 hours

Q.8 **The average demand per day of cars from a travel company by past weeks observation is 4, whereas, by a simulation for 7 days using random numbers, the average demand is 7 per day. Should you advise the company to go by the simulation result?**

Answer: No. Simulation is required for a large no. of days in order to arrive at a reasonable conclusion for taking action.

Q.9

Activities	Total Costs Rs.	Activity – cost drivers
Account inquiry hours	400000	10.000 hours
Account billing lines	280000	40,00,000 lines
Account verification accounts	150000	40,000 accounts
Correspondence letters	50000	4,000 letters
Total cost	8,80,000	

M provides the above ABC information. The above activities are used byDepartments A and B as follows:

	Dept A	Dept B
Account inquiry hours	2,000	4,000
Account billing lines	400,000	200,000

How much of the account inquiry cost will be assigned to Department A?

Answer: Rs. 80,000

Q.10 At the breakeven point of 200 units, variable costs total Rs. 400 and fixed costs total Rs.600. The 201st unit sold will contribute----------to profits.

Answer: Rs. 3

Q.11 In a network, can you have nodes 1 and 2 to be starting nodes, so that the activities 1-3 and 2-3 have no predecessors?

Answer: Yes. 1-2 is a dummy

Q.12 Kraft Kay sells a single product. 7,000 units were sold resulting in Rs.70,000 of sales revenue, Rs.28,000 of variable costs and Rs.12,000 of fixed costs. Contributionmargin per unit is?

Answer: Rs. 6 per unit

Q.13 Activity 1-2 lies on the critical path which has three other activities, each of the same duration of 1 week. If the project can be completed in 4 weeks, what is theearliest finish time of 1-2?

Answer: 1 week

Q.14 How many separate cost pools should be formed given the following information:

Cost	Cost driver
Postage costs	No. of brochures mailed
Printing and paper costs	No. of brochures mailed
Quality control costs	No. of inspections
Customer service costs	No. of customers served

Answer: 3 different cost pools

Q.15 If there were 60,000 kgs of raw materials on hand on January 1, 120,000 kgs are desired for inventory at January 31, and 360,000 kgs are required for production inJanuary after a normal loss of 10% of input, how many kgs of raw materials shouldbe purchased in January?

Answer: 4,60,000 kgs

Q.16 Hefty Company produces A and B with contribution margins per unit of Rs.40 and Rs.30, respectively. Only 500 labor hours and 300 machine hours are available for production.

Time requirements to produce two unit of A and three units of B are as follows:

	A	B
Labour hours	5	2
Machine hours.	1	4

Write the constraint on labour in a linear programming model considering x units of A and y units of B before simplifying the coefficients.

Answer: 5/2x+2/3y ≤ 500

Q.17 Oasis Ltd. Wants to produce and sell a new mineral water. In order to penetrate the market, the product will hav to sell at Rs. 20,00 per bottle. The following data has been collected:

Answer: Rs. 16

Q.18 P Ltd. has old inventory on hand that cost Rs.12,000. Its scrap value is Rs.16,000.The inventory could be sold for Rs.40,000 if manufactured further at an additionalcost of Rs.12,000. What should P Ltd. do?

Answer: Manufacture further and sell it for Rs. 40,000

Q.19 GI can produce 100 units of a necessary component part with the following costs:Direct Materials Rs.40,000
Direct Labor Rs. 18,000 Variable
Overhead Rs.42,000 Fixed
Overhead Rs.16,000
If GI purchases the component externally, Rs.4,000 of the fixed costs can be avoided. Below what external price for the 100 units would GI choose to buy insteadof make?

Answer: Rs. 1,04,000

Q.20 In a 4 x 4 assignment algorithm carried out by a student, the number of lines used to cover the zeroes was 4, though he could have covered them in three lines. Whatwill he face in the next step?

Answer: 3 allotments and zeros will be exhausted

Section : C

(12X4= 48 Marks)

One LAQ

Q.1 **Manton Moulders is operating at 70% capacity and presents the following information:** 9 Marks

BEP= Rs.200 lakhs, PV Ratio= 40% and Margin of Safety= Rs.50 lakhs

The management has decided to increase production to 95% capacity level with the following changes:

Selling price will be reduced by 8%

Variable cost will be reduced by 5% on sales

Fixed cost will increase by Rs.20 lakhs, including depreciation on additions but excluding interest on additional capital.

Additional capital of Rs.50 lakhs will be needed for capital expenditure and working capital

i) Calculate the present profit at 70% capacity [3]

ii) Calculate the sales that will be required to earn Rs.10 lakhs over and above the present profit and also meet 20% interest on the additional capital. [3]

iii) What will be the revised Break Even Point? [2]

iv) What will be the new Margin of Safety? [1]

Answer:

(i) Computation of present profit at 70% capacity:

= Rs. 20 lakhs

(ii) Sales required to earn target profit:

= Rs. 311.12 lakhs

(iii) New BEP = Rs. 244.45 lakhs.

(iv) New MOS = Rs. 66.67 lakhs

Q.2 **Write a brief note on Pricing in Service sector.** 3 Marks

Answer:

- Supply and labour billing.

- Pure labour billing

Cost plus pricing

Service overhead based billing

Q.1 **X Ltd is a diversified corporation with separate and distinct operating divisions. Each division's performance is evaluated on the basis of total profits and return on division investment. The Division A manufactures and sells table top air cooler units. Division A currently produces 15,000 units. Division A's manager believes that sales can be increased if the unit selling price of the table top air cooler is reduced. A market research study conducted by an independent firm at the request of the manager indicates that a 15% reduction in the selling price (Rs.60) would increase volume by 16% or 2,400 units, the reduced price applying to all the units. Division A has sufficient production capacity to manage this increased volume withno increase in fixed costs.**

8 Marks

At present, Division A uses a filter in each of its units that it purchases from an outside supplier at a cost of Rs.70 per filter. The manager of Division A has approached the manager of the Division B regarding the sale of a filter unit to Division A. The Division B currently manufactures and sells exclusively to outside firms a filter that is similar to the one used by Division A. The specifications of the Division A filter are slightly different which would reduce the Division B's direct material cost by Rs.5 per unit. In addition, the Division B would not incur any variable selling costs in the units sold to Division A. The manager of Division A wants all of the filters it uses to come from one supplier, and has offered to pay B Rs.50 for each filter unit. Division B has the capacity to produce 75,000 units and currently sells 64,000 units in the market.

(Rs.)

Particulars	Division A	Division B
Selling Price per unit	400	100
Manufacturing Costs:		
Filter	70	-
Variable Manufacturing Cost	112	30
Variable Marketing Cost	18	6

i) Should Division A go for the increased volume of sales from a financial perspective? Justify your recommendation with appropriate figures. [2]

ii) If B should supply the entire requirement of A after considering i) above, what isthe minimum transfer price that B will agree to, given that a single transfer price applies to all units transferred to A ? Is B likely to accept A's proposed transfer price? [3]

iii)In the interest of X Ltd. as a whole, what should be the best strategy in terms of sourcing and selling the filters? Work out a suitable transfer price for the management to convince A and B. Assume that X Ltd. is not constrained about avoiding partial supply.[3]

Answer:

(i) **Sales revenue for 15000 units = 15000 x 400 = Rs. 60,00,000**
Sales Revenue for 17400 units = 17400 x 0.85x 400 = 17400 x 340=Rs. 59,16,000
A should not go for the increased sales at that discount since there is no incremental revenue or contribution.
Alternatively, Contribution per unit 200, for 15000 units = Rs. 30,00,000
Contribution per unit 140, for 17400 units = Rs. 24,36,000
The volume of 15000 units of air coolers is more profitable for A.

(ii) **B has spare capacity of 75000-64000 = 11000 units. This can be supplied at variable cost less selling and material saving, i.e. 11000 units at 25 Rs. per unit.=Rs. 2,75,000**
4000 units have to be supplied by diverting market sales at Rs. 100 = Rs. 4,00,000
Transfer price for 15000 units = Rs. 6,75,000
Rs/unit = 675000/15000 = 45
A has offered Rs. 50. It will be in B's interest to accept the offer.

(iii) **For every unit of B sold outside, the company earns a contribution of Rs. 64, whereas, if it transfers to A, the cost saved is just Rs. 70-25, which is Rs. 45 per unit.**

For X Ltd's best strategy, B should supply 11000 units to A out of its spare capacity and not divert from the market. X Ltd should convince A to accept partial supply from B. A also stands to gain since instead of paying Rs. 70 outside for the entire requirement of 15000 units, A will incur only Rs. 50, which is also acceptable by B for its spare capacity. A should buy 4000 units from the market at Rs. 70 and 11000 units from B at Rs. 50 which it offered earlier. B will not sell below Rs. 25 per unit(its variable cost to A) even from its spare capacity.

Q.2 **The following data of manufacture and sale is obtained from ABC Ltd. for the year ending 31st March,2021** 4 Marks

Product	A	B	C	D	E	F	Total
Contribution (Rs.)	500	200	1500	75	100	125	2500

Prepare a Pareto product contribution chart and comment on the sales.

Answer:

Rearrange the products in descending order of contribution and find out the cumulative contribution percentage.

Product	Contribution Rs.	Cumulative Contribution Rs.	Cumulative Contribution(%)
C	1500	1500	60%
A	500	2000	80%
B	200	2200	88%
F	125	2325	93%
E	100	2425	97%
D	75	2500	100%
Total	2500		

On analysis it is found that 80% of the total contribution is earned by C and A. Hence these two products should be carefully monitored and nurtured. The other products should be investigated for improvement of contribution.

Q.1 **A company has four territories open, and four salesmen available for assignment. The territories are not equally rich in their sales potential; it is estimated that typical salesman operating in each territory would bring in the following annual sales.**

8 Marks

Territory	1	2	3	4
Annual Sales (Rs. In 000's)	60	50	40	30

The four salesmen are also considered to differ in their ability; it is estimated that,working under the same conditions, their yearly sales would be proportionately asfollows:

Salesman	A	B	C	D
Proportion	6	4	3	8

i) **If the criterion is maximum expected sales, the cost minimization matrix is**

ii) **Matrix for Column minimum operation is**

iii) **If the criterion is maximum expected sales, final assignment of salesman to the territories that result in optimum expected sales is**

Answer:

Maximisation matrix

T/S	6	5	4	3
6	36	30	24	18
4	24	20	16	12
3	18	15	12	9
8	48	40	32	24

(i)Cost Minimisation matrix

12	18	24	30
24	28	32	36
30	33	36	39
0	8	16	24

Row Minimum Operation

0	6	12	18
0	4	8	12
0	3	6	9
0	8	16	24

(ii)Column Minimum operation

0	3	6	9
0	1	2	3
0	0	0	0
0	5	10	15

Minimum uncovered element operation

0	2	5	8
0	0	1	2
1	0	0	0
0	4	9	14

Minimum uncovered element operation

0	2	4	7
0	0	0	1
2	1	0	0
0	4	8	13

Minimum uncovered element operation

0	0	2	5
2	0	0	1
4	1	0	0
0	2	6	11

S \ T	1	2	3	4
A		0		
B			0	
C				0
D	0			

(iii)Optimal assignment. Optimum Sales Value is as follows :

Sales Man	Territory	Sales (Rs 000)
A	2	30
B	3	16
C	4	9
D	1	48
	Total	103

Q.2 **Define Value Engineering(VE).What are the issues considered during a VE review?**

Answer:

4 Marks

Value engineering involves searching for opportunities to modify the design of each component or part of a product to reduce cost, but without reducing the functionality and quality of the product.

The Issues are as follows :

- **Elimination of unnecessary functions from the production process.**
- **Elimination of unnecessary product qualities**
- **Design minimisation**
- **Substitution of parts**
- **Search for better way of doing things.**

Q.1 **ST Ltd. uses a standard costing system. The following data relating to a single product for the month of September has been furnished to you. The Standard costper unit was:** 8 Marks

Direct Material: Standard Price Rs.10 per kg, Standard quantity 20 kgs per unit

Direct Labour : Standard Rate of pay Rs.5.50 per hour, Standard Time 12 hours per unit

Production OH Costs, all classified as fixed, were budgeted at Rs.9,00,000 p.a. Thestandard time for producing one unit is 12 machine hours and normal capacity is60,000 machine hours p.a. Production OH is absorbed on machine hours. The costs incurred and other relevant information for the month is given below:

Direct Material used-1,00,000 kgs at a cost of Rs.10,50,000

Direct Wages paid-Rs.3,10,000 for 62,000 hours

Production Overhead-Rs.9,26,000

Machine capacity used-60,000 hours

Actual output-4,800 units. Assume no stocks of WIP or Finished Goods at the yearend.

i) The standard product cost for one unit is

ii) Variance for Material (Usage and Price) are

iii) Variance for Labour(Rate and Efficiency) are:

iv) Variance for Fixed OH (Volume and Expenditure) are

Answer:

i) Standard Product Cost for one unit = Rs. 446

ii) Material Usage Variance:= Rs. 40,000 (A)
Material Price Variance:= Rs. 50,000 (A)

iii) Labour Efficiency Variance:= Rs. 24,200 (A)
Labour Rate Variance:= Rs. 31,000(F)

iv) Fixed OH Volume Variance: = Rs. 36,000(A)
Fixed OH Expenditure Variance: = Rs. 26,000(A)

Q.2 **What is the impact of Just-in-time on Product Prices?** 4 Marks

Answer:

When a company achieves a higher level of product quality, along with ability to deliver products on the dates required, customers may be willing to pay a premium. This is particularly true in industries where quality or delivery reliability is low. If customers are highly sensitive to these two factors, it may be possible to increase the price substantially. Alternatively, if these factors are not of great importance, if customers place a higher degree of importance on other factors, then there will be no opportunity for a price increase.

In industries where many companies are adopting JIT systems at the same time or have already installed them, an improvement in product quality and delivery times does not differentiate a company from its peers. Instead, since everybody else is offering the same level of quality and service it just keeps a company from losing sales to its competitors. In such a situation it is more likely that all companies remaining in the industry will use their new-found lower costs to initiate a price war that will result in a drop in prices. Consequently, the impact of a JIT system on product pricing is primarily driven by customers' perceived need for higher product quality and reliable delivery times, as well as the presence of competitors with JIT system, the same installation, and operational base.

Q.1 **A project consists of 7 activities and the time estimates of the activities arefurnished as under:** 7 Marks

Activity	Optimistic days	Most likely days	Pessimistic days
1-2	4	10	16
1-3	3	6	9
1-4	4	7	16
2-5	5	5	5
3-5	8	11	32
4-6	3	6	9
5-6	2	5	8

i) **Possible paths of the project are**

ii) **Identify the critical path and its duration**

iii) **Variance of the critical path is:[1]**

iv) **What project duration will provide 95% confidence level of completion ($Z_{0.95}$=1.65)?**

Answer:

(i) te=(t0+4tm+tp)/6

Possible paths are= 1 – 3 – 5 – 6=6+14+5= 25 days

1 – 2 – 5 – 6= 10+5+5= 20 days

1 – 4 – 6= 8+6= 14 days

(ii) Critical path is 1 – 3 – 5 – 6= 6+14+5= 25 days

(iii) Variance of Critical path is:[(tp-t0)/6]2= 1+16+1= 18 days

(iv) Given that Z= 1.65 for probability of 95%

So [Tr – Tcp]/SD= [Tr– 25]/4.24= 1.65

Hence Tr = 25 + 6.996 = 32 days

Q.2 **(i) State the major reasons for using Simulation technique to solve managementproblem.** 5 Marks

ii) Outline the limitations of Simulation.

Answer:

(i) - A simulation model is easier to explain to management.

- Model experimentation. Experimenting with the actual system itself would be too costly.

- Suitable in cases of large complex problems.

- Cost savings.

(ii) Limitation of Simulation :

- Simulation is not precise.

- Only situations involving uncertainty an be measured.

- Simulation generates only a way to evaluate solutions but does not generate the solution techniques.

- Choice of random numbers is subjective.

Six LAQ

(4X3 = 12 Marks)

Q.1 Write short note on advantages of Target costing 3 Marks

Answer:

Advantage of Target Costing :

(i) Innovation

(ii) Competitive advantage

(iii) Market driven management

(iv) Real cost reduction

Q.2 Write short note on Rate of return pricing. What are the issues that may arise due toadoption of this pricing? 3 Marks

Answer:

Rate of Return Pricing :

Determination of return on capital employed is one of the most crucial aspects of price fixation process. In this process instead of arbitrarily adding a percentage on cost of profit, the firm determines an average mark up on cost necessary to produce a desired rate of return on its investment. Under this method three issues arise:

- **The basis on which the capital employed is computed.**
- **Which items should be covered on the return on capital.**
- **What rate of return can be regarded as fair?**

Q.3 Write short note on Lean Accounting 3 Marks

Answer:

Lean Accounting :

It is the general term used for the changes required to a company's accounting, control, measurement and management processes to support lean manufacturing and lean thinking. Lean manufacturing breaks the rules of mass production and so the traditional accounting and management methods are at best unsuitable and usually activity hostile to the lean changes the company is making.

Q.4 Write short note on Project crashing 3 Marks

Answer:

Project Crashing :

Project crashing is a network technique with a focus on reducing the project duration to the optimum level. Reduction in project duration may involve extra costs. Hence, project crashing seeks to determine the optimum duration of the project, i.e. time that corresponds to the minimum costs. The activity cost slope indicates the additional cost incurred per unit of time saved in reducing the duration of an activity.

Q.5 Write short note on concept and aim of Theory of Constraints 3 Marks

Answer:

Concept and aim of theory of Constraints :

TOC analyses the Bottlenecks and constraints within the firm that restrict output and hinder speedy production. Through put is related directly to the ability to cope with the constraint and to manage the bottle neck. This focus on throughput enables management to examine both constraints and bottlenecks in order to increase Throughput contribution.

Q.1 **Getwell Hospitals is a recently constructed multi speciality hospital and has beenoperating for the last three years quite successfully. A group of doctors who werefounders of this hospital could not use the entire facility by itself to recover costsand make profits. They rented out the hospital facilities to different expert groupslike pediatrics, cardiology etc. and collected amounts consisting of two elements-the variable portion relating to the number of patient days and a fixed portion irrespective of the number of beds occupied. Apart from common facilities, the respective expert groups had to engage its own nurses, aides and supervisory nurses on a full time basis. This is being done carefully after assessing the abilityto attend on the requirements of patients.**

During COVID, the number of patients who came for regular check-ups and undertook consequent preventive medical treatments dwindled drastically and therefore the whole hospital saw the necessity and opportunity to function as a COVID Care hospital. Now the facilities were rented to Covid treatment groups andall groups had a hundred per cent occupancy.

One such group called Covid Sure Cure (CSC) that rented this facility had the following figures for the past year:
It had taken up 60 beds for 365 days. It was charged by Getwell a sum of Rs. 9,31,80,000 as the fixed charge and Rs. 9000 per patient day as the variable charge.CSC in turn charged its patients Rs. 15000 per bed per day.

The range of requirements beginning from the minimum relating to nursing staff isgiven below: 4+2+2+4= 12 Marks

Annual patient days	Aides (A)	Nurses (N)	Supervising Nurses (SN)
10,000 - 14,000	20	10	3
14001-17000	21	11	3
17001- 20000	21	12	3
20001-23000	22	13	4
23001-25000	23	14	5
25001-27000	24	15	7

Salaries that had to be paid annually to each person under these categories was the following

	Rs.3,60,000	Rs.4,80,000	Rs.5,40,000

CSC was comfortable during the pandemic as all the beds were occupied all the time and there was a growing demand for more. But in the coming year, as the number of patients has come down and some beds are now being given for post- covid complication care patients, CSC wants to look at its cost structure to be able to negotiate a different pricing with Getwell.

i) **Under the given conditions of outflows to salaries and to Getwell, how many patient days will be required by CSC for the earliest break-even?**

ii) **How many beds does this figure translate to, on an average?**

iii) **Will it be substantially worthwhile for CSC to consider trimming its requirement on the number of nursing staff?**

iv) **If CSC expects an 80 % level of occupancy during the current period, what shouldbe the amount to be paid to Getwell with a 25 % margin of safety? It feels it cannot increase the charge to patients.**

Answer:

i) **BEP patient days = 18020.**

ii) **This translates to about 49.36, say 50 beds occupancy. (18020 ÷ 365)**

iii) **The staffing cost is very low considering the huge bulk of fixed cost to Getwell. As seen above, one level of pruning will only save 230 patient days, which is not even one bed occupancy. Hence it is not worthwhile for CSC to trim its staff. Another aspect is that trimmed workforce may be stressed and may not render adequate quality. Further, it is stated that the staffing is already done carefully. Hence there is no likelihood of a substantial reduction in nursing staff cost.**

iv) **Amount to be paid to Getwell towards fixed and variable component = Rs. 18,21,60,000.**