VPM's
DR VN BRIMS, Thane
Programme: PGDM (2016-18)
First Trimester Examination Oct 2016

Subject	Operations Management		
Roll No.		Marks	60 Marks
Total No. of Questions	7	Duration	3 Hours
Total No. of printed pages	4	Date	05.10.2016

Note: Q1 is compulsory and solve any FOUR from the remaining SIX questions.

Q1) 20 Marks (Compulsory)

Fitness Plus is thoroughly investigating the option of opening a new facility downtown. Doing so would be an aggressive capacity expansion strategy, opening up new markets when competition is increasing at the original facility. This strategy would enable Fitness Plus to expand its market area, but may not help the overcrowding at the current facility. There are several uncertainties as to future costs, customer demands, and strategies of competitors. It also will take some time to bring the new capacity on line. However, the resurgence in activity downtown makes this option worth more careful analysis.

Fitness Plus can lease a facility at $8 per square feet at a new downtown location. It would be very accessible to the new offices and businesses that are moving back into downtown. The lot is sufficiently large to handle a full-service club comparable in size with the original facility, with ample room for parking. It would probably take about one year before financing could be arranged, the workforce hired and trained, and the facility open to customers.

The new facility would have 8,000 square feet, without further expansion. Either new or used Nautilus and cardiovascular equipment can be purchased for the new facility. Buying the full complement (53 machines) of equipment currently at the original facility would be $160,000 new, and only $80,000 used. However, there is a concern that a brand new facility furbished with used equipment would not project a good image, and that membership might be adversely affected. The initial investment in carpeting (and rubber matting just for the weight lifting area) would cost a total of $16 per square yard for the whole facility. Annual costs would include $120,000 for salaries and wages, $25,000 for insurance and liability, $2,400 for maintenance, and $20,000 for electricity.

The facility should attract customers from a 6-mile radius. Membership fees would be $70 per month, with an additional $200 initiation fee in the first year. A juice bar and tanning beds can be added to bring in additional revenues. The juice bar can generate an added 14% of sales, and tanning beds can add another 1% of sales. A tanning bed costs around $5000 with a payback of just one year.

Demand for the new facility can be low or high. If low, there would be 150 members in the first year of operation, and grow until reaching a 500-member plateau in the 6th year. This level is the largest the leased facility can currently handle. If demand for the new facility is high, the membership would be 300 in the first year and could increase to 1000 in the 6th year (assuming sufficient capacity). If demand turns out to be this high, Fitness Plus has the option of having the leased facility expanded to 14,000 square feet. This expansion would accommodate a 1000-person membership. If expansion occurs before the facility is opened, the lease cost will increase only to $9 per square foot. If expansion occurs after the facility is opened, the leasing cost would jump to $10 per square foot once the expansion is finished. While the facility would not close down during this later expansion (which would affect revenues), construction costs would be disproportionately higher and thus the $10 leasing rate thereafter.

A larger facility also means that annual costs would increase to $4200 for maintenance, $195,000 for salaries and wages, $30,000 for insurance and liability, and $38,000 for electricity. There would also be the added investment of $10,500 in carpeting. The investment in equipment would also have to be increased from 53 to 100 machines to handle the larger demand.

Management believes that the high-demand scenario is 60 percent likely, with the small demand estimates only 40 percent likely. It should be clear the end of the first year of operation whether the high- or low demand scenario is correct. Of course, if demand is high, the best decision might not be to expand but instead forego any increase in market share in the downtown area.

The MACRS accelerated depreciation schedules would be used when estimating after-tax cash flows for any new capital investments in the facility and equipment. The income-tax rate, including relevant federal, state, and local taxes, would be 40 percent. This rate is based on the average income-tax rate experienced by Fitness Plus over the past several years. Management is not sure what discount rate should be used, but generally expects a return on investment of at least 15 percent.

QUESTIONS

1. Which alternative seems best, a small expandable facility that might be expanded later, or a full sized facility comparable to the original facility? Combine notions of capacity planning with capital budgeting (see the Financial Analysis supplement on the Student CD-ROM), decision trees (see Supplement A, "Decision Making"), and computer spreadsheets to support your conclusions. List any reasonable assumptions that you must make when doing your analysis.
2. How sensitive are your conclusions to estimated probabilities for demand (see "sensitivity analysis" in Supplement A, "Decision Making")? The discount rate?
3. What qualitative factors bear on these two alternatives, and whether Fitness Plus should expand downtown at all?

Attempt Any FOUR from the Remaining SIX Questions

Q2) ***Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks***

a) What are some of the skills which make a good operations manager?

b) As an operations manager, what steps would you take to improve company's performance on new product development?

c) Design an input - out model for an industry of your choice and explain with reference to the operations functions.

Q3) ***Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks***

a) Service gap analysis is important from business perspective. What according to you helps business understanding the services gaps? Give an example of one of the gaps and explain.

b) What according to you is the most important challenge which operations manager is facing? Please justify your answer with a suitable example.

c) A lot has been talked about services economy. How do services organizations differ from manufacturing organizations in terms of operations?

Q4) ***Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks***

a) Layouts are very important both in manufacturing and services industry. What are some of the objectives which are desired out of efficient layout?

b) Quality comes at a cost and a lot of managers continue to believe this. What is your view with regards to cost factors associated with quality?

c) Explain the different APP strategies which are used by various organizations with a suitable example.

Q5) ***Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks***

a) What is learning curve and how it can be used in production and operations management?

b) What are some of the important questions to be asked while selecting an operations manager?

c) Production planning and control is called the heart of production and operation mgmt. Discuss.

Q6) ***Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks***

a) Mention the areas in which production management can offer competitive advantage to a firm.

b) Discuss the role of inventory control in the total materials management function.

c) Process management has been discussed as a key drives to the success of services industry. Do you agree with the statement? Justify your answer.

Q7) ***Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks***

a) Complete the MRP for the component X

Information given below:

Safety Stock :50	**Order Quantity** = 250	**Lead time** = 3 weeks

Order Qty= 250 LT=3 weeks Safety Stock =50	Week No's								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Requirement	40	100	70	150	20	20	50	100	70
Schedule receipt		250							
Stock in hand (150)									
Planned order Release									

b) Outline the general approach for developing location alternatives.

c) The management of the transformation process is what we mean by prod. Mgmt. Its study is quite independent of whatever specific technologies are involved and is concerned with employing methodology to operate and administer transformation systems with effectiveness. Explain this statement and discuss the important function and responsibilities of a production Manager.