USN | | | | | | | | | | 10ME/PM81

Eighth Semester B.E. Degree Examination, June/July 2018

Operations Management

Time: 3 hrs.   Max. Marks:100

Note: *Answer FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1 a. What is productivity? Explain the factors affecting productivity.   **(10 Marks)**
   b. Describe the term operations management. Explain the basic functions of business organization with the help of block diagram.   **(10 Marks)**

2 a. Explain break even analysis with the necessary equations, graphs and assumptions.**(10 Marks)**
   b. A computer company evaluating three cities for a new plant to manufacture hardware components which will sell at Rs.170/- each. The economic portion of a plant location study shows the following cost and market data:

Cities	A	B	C
F.C/Yr (in Rs.1000's)	300	200	150
V.C/unit	30	45	65

Volume	Probability
4500	0.1
5500	0.3
6500	0.6

Cost data   Market data

   i) On the basis of maximizing an economic expected value, graph the plant location curve (cost) using appropriate scale.
   ii) Which city should be selected on the basis of given volume estimate (from graph)?
   iii) What is the break even volume for the city selected?   **(10 Marks)**

3 a. Define forecast. Explain the element of a good forecast.   **(10 Marks)**
   b. What is weighted moving average? Considering the following data:

Period	1	2	3	4	5
Demand	42	40	43	40	41

   i) Compute a weighted average forecast using a weight of 0.4 for the most recent period, 0.3 for the next most recent, 0.2 for the next, and 0.1 for the next.
   ii) If the actual demand for the period 6 is 39, forecast the demand for period 7 using the same weights as in part (i).   **(10 Marks)**

4 a. Differentiate design capacity and effective capacity with examples.   **(06 Marks)**
   b. List and explain the factors that may inhibit capacity utilization.   **(10 Marks)**
   c. Outline to general approach for developing location alternatives.   **(04 Marks)**

PART – B

5 a. List the important strategies for aggregate planning.   **(04 Marks)**
   b. Discuss general procedure for aggregate planning.   **(06 Marks)**

c. A clothing producer has generated a forecast for the next eight weeks. Demand is expected to be fairly steady, except for periods 3 and 4, which have higher demands.

Period	1	2	3	4	5	6	7	8	Total
Forecast	1200	1200	1400	3000	1200	1200	1200	1200	11600

The company typically hires seasonal workers to handle the extra workload in periods 3 and 4. The cost for hiring and training a seasonal worker is Rs.50/worker, and the company plans to hire two additional workers and train them period 3, for work load in period 4, and then lay them off (no cost for layoff). Develop an aggregate plan that uses steady o/p from regular workers with added o/p from the two seasonal workers in period. The o/p rate for the seasonal workers is slightly less than that of regular workers, so their cost/unit is higher. The cost/unit for regular workers is Rs.4/hr, while cost/unit for seasonal worker is Rs.5/unit. Backlog cost is Rs.1/unit/period. **(10 Marks)**

6 a. Define the term 'inventory'. List the major functions of inventory. **(10 Marks)**
 b. Describe the basic EOQ model and its assumptions. **(05 Marks)**
 c. A local distributor for a national tyre company expects to sell approximately 9600 steel-belted radial tyres of a certain size and tread design next year. Annual carrying cost is Rs.16/tire, and ordering cost is Rs.75.
  i) What is the EOQ?
  ii) How many times per year does the store reorder? **(05 Marks)**

7 a. What do you understand by the term MRP? Describe the inputs, outputs and nature of MRP processing with the help of a neat block diagram. **(10 Marks)**
 b. Describe MRP-11 with the help of a flow chart. **(10 Marks)**

8 a. Write short notes on:
  i) SCM
  ii) The procurement process
  iii) Concept of tenders
  iv) Importance of purchasing **(12 Marks)**
 b. List and explain the key performance measures of supply chain. **(08 Marks)**

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