Eighth Semester B.E. Degree Examination, June/July 2017

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. Define operations management. Give a brief account of the historical evolution of operation management. **(08 Marks)**
    b. Differentiate between product and services. **(06 Marks)**
    c. State the factors affecting productivity. **(06 Marks)**

2   a. Briefly explain the various characteristics of decision making. **(05 Marks)**
    b. Explain the framework for decision making. **(07 Marks)**
    c. The following figures shows profit and sales of XYZ company:

Year	Sales (Rs)	Profit (Rs)
2014	25,000	3,000
2015	35,000	4,500

      Calculate: i) Fixed cost   ii) P/V ratio,
                 iii) BEP   iv) Sales to earn a profit of Rs.6000. **(08 Marks)**

3   a. State and explain various factors affecting forecasting. **(06 Marks)**
    b. State various time series methods of forecasting. Explain:
      i)   simple moving average
      ii) weighted moving average. **(08 Marks)**
    c. Demand for a TV sets in Mumbai showrooms was 400 in 1st quarter, 350 in 2nd quarter and 250 in 3rd quarter.
      i)   What is the forecast for the 4th quarter by simple average method?
      ii) What is the forecast for 4th quarter by WMA, given weightage for the most recent part period double than the other previous two period? **(06 Marks)**

4   a. Explain:
      i)   Design capacity
      ii) System capacity. **(06 Marks)**
    b. List the various factors influencing plant location. Explain. **(06 Marks)**
    c. A firm developing agency must determine how many photo enlarger cubicles are required to maintain in output of 200 goods per hour. The set up and explosure time can theoretically be done on 2 minutes per print, but operators are on the average only 90 percent efficient and in addition 5 percent of print scrapped and redone. Also the cubicles can utilized for enlarging only 70 percent of the time.
      i)   What is the required system capacity in prints/hr?
      ii) What average output/hr can be expected from each cubicles taking its use factor and efficiency into account?
      iii) How many enlarger cubicles are required? **(08 Marks)**

PART – B

5 a. Explain various aggregate planning cost. (06 Marks)
   b. Distinguish between aggregate planning and master scheduling with an example. (04 Marks)
   c. Vertex Inc. produces machines that have a seasonal demand pattern, we are required to plan the optimum production rates and inventory levels for the next four quarter periods. The available production capacities during regular time (RT), over time (OT) as well as other cost data are as follows:

Supply capacities (units)				Demand & Inventory	
Period	RT	OT	SC	Period	Units
1	1200	150	800	1	1200
2	900	200	800	2	900
3	1000	350	800	3	1000
4	700	350	800	4	700

   i) Initial inventory = 110 units   ii) Final inventory = 140
   iii) Regular time cost/unit = Rs.100   iv) Overtime cost/unit = Rs.125
   v) Sub contracting cost/unit = Rs.145   vi) Cost of unused capacity = Rs.40/unit
   vii) Inventory cost per unit/period = Rs.15
   Determine optimum production and total cost. (10 Marks)

6 a. Discuss the need for inventory. (06 Marks)
   b. Explain the various cost associated with inventory. (06 Marks)
   c. A company estimates that it will sell 12000 units of its product for the next year. The ordering cost is Rs.100/order and the carrying cost per unit per year is 20% of the purchase price per unit. The purchase per unit s Rs.50. Find:
   i) Number of orders per year
   ii) EOQ
   iii) Time between successive orders. (08 Marks)

7 a. Discuss various MRP inputs and outputs. (10 Marks)
   b. With the given product structure tree and inventory, compute the net requirements for A, B, C, D and E to produce 50 units of X.

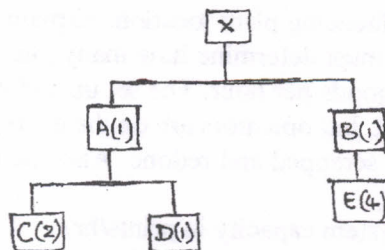| Components	A	B	C	D	E
Inventory on hand & on order	20	10	15	30	100

Fig.Q7(b)
(10 Marks)

8 a. State the importance of purchasing and supply management. (06 Marks)
   b. Explain the procurement process. (06 Marks)
   c. Explain stages of vendor development. (08 Marks)

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