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10ME81

Eighth Semester B.E. Degree Examination, Dec.2017/Jan.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. Explain briefly with a schematic model the functions within business organization and operation management. (08 Marks)
b. Define operation management. Explain the classification of production systems. (06 Marks)
c. Define productivity. List the various factors affecting productivity. Mention how it can be improved. (06 Marks)
 2. a. What is decision making? Explain the frame work for decision making. (06 Marks)
b. Briefly explain the characteristics of operation decision. What is Break even analysis? Explain. (08 Marks)
c. Jindal steels Ltd. is planning to start a new factory for manufacturing steel utensils. It is considering three location options namely Bengaluru, Shimoga and Bellary. The fixed cost at these locations have been estimated at ₹ 8.15 million, ₹ 7.377 million and 7.903 million respectively. The variable costs at the three locations are estimated at ₹ 500 per unit, ₹ 580 per unit and ₹ 490 per unit respectively. The factory will have an annual production capacity of 10000 units and in the initial year it will operate at 75% efficiency. Find the best location option, which has the lowest total cost of production. (06 Marks)
 3. a. What is forecasting? List the steps involved in forecasting process. (04 Marks)
b. Explain the moving average and simple exponential smoothing methods of forecasting. (08 Marks)
c. The Table below gives a sales record of a firm. Determine the regression line for the firm and find the forecast of sales in the month of January for next year (08 Marks)
- | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 90 | 111 | 99 | 89 | 87 | 84 | 104 | 102 | 95 | 114 | 103 | 113 |
4. a. Distinguish between design capacity and system capacity. (04 Marks)
b. Explain the various factors that influence the location of plants. (06 Marks)
c. What is facility layout? What factors determines the type of layout used in an organization? (05 Marks)
d. Sketch and explain any two types of layouts. (05 Marks)

PART – B

5. a. Briefly explain the following with the help of a flow chart:
(i) Aggregate planning. (ii) Master scheduling (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

- b. A company produces mini computers that have a seasoned demand patterns. The available production capacity during regular time and overtime, as well as cost data are shown in the table below:

Period	Available capacity units			Demand Forecast units
	RT	OT	SC	
1	60	18	1000	100
2	50	15	1000	50
3	60	18	1000	70
4	65	20	1000	80

Initial inventory = 20

Final inventory = 25

Total cost/unit (Regular time) = ₹ 100/-

Overtime cost/unit = ₹ 125/-

Sub contract cost/unit = ₹ 130/-

Carrying cost unit/period = ₹ 2

Using transportation.

(12 Marks)

- 6 a. What you mean by inventory? What are the types of inventory? (04 Marks)
- b. Define ABC analysis, EOQ and ordering cycle. (06 Marks)
- c. Calculate the economics lot size with uniform date of demand and instantaneous replacement. Give total costs and total annual costs. (06 Marks)
- d. An industry estimates that it will sell 12000 units of its product for the next year. The ordering cost is ₹ 100 per order and the carrying cost per unit per year is 20% of the purchase price per unit. The purchase price per unit is ₹ 50. Find (i) EOQ (ii) Number of orders per year (iii) Time between successive orders. (04 Marks)
- 7 a. Define MRP and with a block diagram, explain the various inputs to an MRP system. (10 Marks)
- b. What is ERP? Write the benefits and limitations of MRP. (05 Marks)
- c. A work centre operates 6 days a week on a two shifts per day basis (8 hours per shift). It has four machines with the same capacity. If the machines are utilized 75% of the time at a system efficiency of 90%, what is the rated output in standard hours per week? (05 Marks)
- 8 a. Why has purchasing and supply chain management assumed to be importance in today's organizations? (08 Marks)
- b. Briefly explain the following: (08 Marks)
- Vendor development
 - E-procurement.
 - Concept of tenders.
 - Make or buy decision.
- c. Define vendor rating. Explain the steps involved in the vendor rating. (04 Marks)

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