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10ME/PM81

Eighth Semester B.E. Degree Examination, Dec.2015/Jan.2016

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 production operation management. How to classify production system? Explain any one with example. (10 Marks)
 b. What are factors affecting productivity? (05 Marks)
 c. What are the objectives of production management? (05 Marks)
 2. a. Explain the following :
 i) Decision support system ii) Characteristics of decision iii) Management is science (09 Marks)
 b. Outline and explain the steps in decision making process. (06 Marks)
 c. What are the decisions making environments? Explain briefly. (05 Marks)
 3. a. What is a Forecasting? Why are forecasts important to organization? What are features? (05Marks)
 b. Mention the forecasting procedure for using time series method. (05 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 (10 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. Define capacity and capacity planning. (05 Marks)
 b. Explain long term capacity strategies. (05 Marks)
 c. A company has six production areas as shown in the facility outline, it proposes to locate six departments (A, B, C, D, E, F) which have the number of moves per day between departments as shown in the travelling chart. Develop a layout of six departments of graphic approaches, which minimize the non adjacent flows

| | | |
|---|---|---|
| 1 | 2 | 3 |
| 4 | 5 | 6 |

Facility outline layout

| To From | A | B | C | D | E | F |
|------------|---|---|---|----|----|---|
| A | - | 7 | - | - | - | 5 |
| B | - | - | - | 4 | 10 | - |
| C | - | 7 | - | - | 2 | - |
| D | - | - | 8 | - | - | - |
| E | 4 | - | - | - | - | 3 |
| F | - | 6 | - | 10 | - | - |

Travel chart

(10 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.

PART – B

- 5 a. What is aggregating planning? What are the objectives of aggregating planning? (08 Marks)
 b. The supply, demand, cost and inventory data for a company which has constant workforce is given below.

| Demand Forecast | |
|-----------------|--------|
| Period | demand |
| 1 | 100 |
| 2 | 50 |
| 3 | 70 |
| 4 | 80 |

Initial inventory = 20

Final inventory = 25

| Supply Capacity (Units) | | | |
|-------------------------|--------------|-----------|-------------|
| Period | Regular time | Over time | subcontract |
| 1 | 60 | 18 | 1000 |
| 2 | 50 | 15 | 1000 |
| 3 | 60 | 18 | 1000 |
| 4 | 65 | 20 | 1000 |

Total cost / Unit (Regular time) = ₹ 100, overtime cost / unit = ₹ 125

Sub concrete cost/unit = ₹ 130

Carrying cost unit/period = ₹ 52

Using transportation.

(12 Marks)

- 6 a. What is inventory? Why is inventory management required in organization? What are the lines of inventory? (08 Marks)
 b. Trinity Hospital at Bangalore sources 20,000 disposable syringes every year, from supplier. The ordering cost per period is ₹ 100 and we carrying cost is ₹ 1 per unit per year. The price of a springs ₹ 5, The supplier offers a 5% discount if purchases are made in loss of 10,000 syringes or more. Determine whether the discount model better than EOQ model in this situation. (12 Marks)

- 7 a. What are the three inputs for an MRP system? Briefly explain them. (08 Marks)
 b. A firm producing wheel barrows is expected to deliver 40 wheel barrows in week, 60 in week if 60 in week 61, and 50 in week. Among the requirements for each wheel barrow are two handle bars, a wheel assembly and are for wheel assembly. The following table shows BOM and inventory data for wheel barrow components

| Part | Order | Lead times | Inventory on hand |
|------------------|-------|------------|-------------------|
| Handle bars | 300 | 2week | 100 |
| Wheel assemblies | 200 | 3 week | 220 |
| Tyres | 400 | 1 week | 50 |

90 wheel assemblies are also required in week 5 for a garden shipment A shipment of 300 handles bars is already scheduled to be received at the beginning of the week 2. Compute the MRP for the handle bars, wheel assemblies and tyres. Show that, quantities or order must be released and when they must be released to satisfy the master schedule? (12 Marks)

- 8 a. What is the importance of purchasing and supply management in operation managements? List the function of purchase department. (08 Marks)
 b. What do you mean by make or buy decision? How do you assess the above decision through the BEP chart? (06 Marks)
 c. Define vendor rating. Explain steps involved in vendor rating. (06 Marks)

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