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10ME/PM81

## Eighth Semester B.E. Degree Examination, June/July 2019

### Operations Management

Time: 3 hrs.

Max. Marks:100

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

#### PART - A

- 1 a. Explain the concept of production and briefly discuss the classification of production systems with their advantages and limitations. (14 Marks)
- b. Define productivity. Explain the factors affecting productivity. (06 Marks)
- 2 a. List and explain the steps in a decision making process. (08 Marks)
- b. A produce of digital watches sells his product at Rs.30 each. The production costs at volumes of 10000 and 25000 units are as follows. Using the data, prepare a break-even chart and determine BEP.

Item	10000 units	25000 units
Labour	Rs. 60,000	Rs. 1,00,000
Materials	1,20,000	2,00,000
Overheads	90,000	1,10,000
Selling and Administration	50,000	60,000
Depreciation	80,000	80,000
<b>Total</b>	<b>4,00,000</b>	<b>5,50,000</b>

(12 Marks)

- 3 a. Explain the following forecasting methods:
  - i) Exponential smoothing
  - ii) Linear regression (08 Marks)
- b. The sales for the domestic water pumps manufactured by a company is given in the table. Forecast the demand for the pumps for the next 3 years using least square method.

Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Sales (000) <sup>x</sup>	30	33	37	39	42	46	48	50	55	58

(12 Marks)

- 4 a. Briefly explain a systematic approach to long term capacity decisions. (08 Marks)
- b. Discuss the reasons for plant location study. (06 Marks)
- c. Explain the factors influencing plant location. (06 Marks)

#### PART - B

- 5 a. What do you mean by aggregate planning? What are its objectives? (06 Marks)
- b. What are the strategies of aggregate planning? Briefly explain. (06 Marks)
- c. The supply, demand, cost and inventory data for a company which has a constant work force is given below:

Demand Forecast	
Period	Demand
1	100
2	50
3	70
4	80

Initial inventory = 20

Final inventory = 25

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.



Supply Capacity (units)			
Period	Regular time	Overtime	Subcontract
1	60	18	1000
2	50	15	1000
3	60	18	1000
4	65	20	1000

RT cost/unit = Rs.100

OT cost/unit = Rs.125

SC cost/unit = Rs.130

Unused RT cost = Rs.50/unit

Carry cost/unit/period = Rs.2

Using transportation model, allocate production capacity to satisfy demand at minimum cost. (08 Marks)

- 6 a. Define inventory. Explain the different types of inventories. (06 Marks)  
 b. Explain the important reasons for keeping inventories. (06 Marks)  
 c. The demand for a particular item is 18000 units per year. The holding cost/unit is Rs.1.20 per year and the cost of procurement is Rs.400. Determine:  
 i) Economic ordering quantity  
 ii) Number of orders/year  
 iii) Time between orders (08 Marks)
- 7 a. What are the three major inputs for an MRP system? Briefly explain. (08 Marks)  
 b. Briefly explain the following:  
 i) MRP-II  
 ii) ERP  
 iii) CRP (12 Marks)
- 8 a. What is supply chain? What are its objectives? (06 Marks)  
 b. Explain the different approaches to SCM. (06 Marks)  
 c. Briefly explain the following:  
 i) Vendor development  
 ii) Make or buy decision  
 iii) E-procurement (08 Marks)

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