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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
Total	4,00,000	5,50,000

(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 $(000)^x$	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

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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