

PGDM (RM) (17-19)
Inventory & Logistics Management
RM- 205

Trimester – II, End-Term Examination: December 2017

Time allowed: 2 hrs 30 min
Max Marks: 50

Roll No: _____

Instruction: Students are required to write Roll No on every page of the question paper, writing anything except the Roll No will be treated as **Unfair Means**. In case of rough work please use answer sheet.

Sections	No. of Questions to attempt	Marks	Marks
A	3 out of 5 (Short Questions)	5 Marks each	$3 \times 5 = 15$
B	2 out of 3 (Long Questions)	10 Marks each	$2 \times 10 = 20$
C	Compulsory Case Study	15 Marks	15
		Total Marks	50

SECTION A

- A1. Describe the situations when qualitative forecasting techniques will be more suited compared to quantitative forecasting techniques. **[5 Marks]**
- A2. How does the positioning of inventory in firms affect customization, lead time, inventory size, efficiency and product cost? **[5 Marks]**
- A3. Discuss the concept of logistics outsourcing. What are the main differences between third party logistics and fourth party logistics provider? **[5 Marks]**
- A4. Product M is made of two units of N and three units of P. N is made of two units of R and four units of S. R is made of one unit of S and three units of T. P is made of two units of T and four units of U. **[5 Marks]**
- i. Show the bills of material (Product Structure tree)
 - ii. If 100 units of M are required, how many units of each component are needed?

A5. The MRP gross requirements for Item A are shown here for the next 8 weeks. Lead time for A is three weeks and setup cost is \$10. There is a carrying cost of \$ 0.01 per unit per week. Beginning inventory is 90 units.

Weeks	1	2	3	4	5	6	7	8
Gross Requirement	30	50	10	20	70	80	20	60

Use the least total cost lot sizing method to determine when and for what quantity the first order should be released? [5 Marks]

SECTION B

B1. Select one retail firm of your choice and analyze the concept of logistics competency with respect to that firm. How can a firm develop logistics competency to achieve the competitive advantage? [10 Marks]

B2. a. Assume that your stock of sales merchandise is maintained based on the forecast demand. If the distributor's sales personnel call on the first day of each month, compute your forecast sales by each of the two methods requested here.

Month	Actual demand
June	140
July	180
August	170

- i. Using a weighted moving average, what is the forecast for September with weights of 0.20, 0.30 and 0.50 for June, July, and August, respectively?
- ii. Using single exponential smoothing and assuming that the forecast for June had been 130, forecast sales for September with a smoothing constant alpha of 0.30. [5 Marks]

b. Following are two weekly forecasts made by two different methods for the number of gallons of gasoline, in thousands, demanded at a local gasoline station. Also shown are actual demand levels, in thousands of gallons.

Week	Forecast		Actual Demand
	Method 1	Method 2	
1	0.90	0.80	0.70
2	1.05	1.20	1.00
3	0.95	0.90	1.00
4	1.20	1.11	1.00

What are the value MAD and MSE for each method? [5 Marks]

- B3 Discuss the various types and functions of warehousing in a logistics system. Analyze the warehousing and transportation tradeoff in logistics functions. How the containerization assist in overall logistics function. [10 Marks]

SECTION C

Ranbaxy Laboratories, a manufacturer of medical supplies, uses aggregate planning to set labor and inventory levels for the year. While a variety of items are produced, a standard kit composed of basic supplies is used for planning purposes. Demand varies with seasonal illnesses and the quarterly ordering policies of hospitals. The average worker at Ranbaxy Laboratories can produce 1000 kits a month at a cost of \$9 per kit during regular production hours and \$10 a kit during overtime production. Completed kits can also be purchased from outside suppliers at \$12 each kit. Inventory carrying costs are \$2 per kit per month. Overtime is limited to regular production, but subcontracting is unlimited.

Due to high quality standards and extensive training, hiring and firing costs are \$1500 per worker. Ranbaxy Laboratories currently employs 25 workers.

Demand Forecast

Month	April	May	June	July	August
Demand	60,000	22,000	15,000	46,000	80,000

Questions:

Given the demand forecasts, develop a five month aggregate production plan for Ranbaxy Laboratories using the following two strategies:

- i. Chase strategy using hiring and firing of workforce. [6 Marks]
- ii. Mixed strategy where the current workforce is kept for April through August, and supplemented with overtime and subcontracting as needed. [6 Marks]
- iii. Analyze the concept of chase strategy and level strategy and what are the major differences between these two strategies? [3 Marks]