MEL756: Supply Chain Management

State all your assumptions very clearly. Your response should be pointed. Please give examples from real world to strengthen your points. This will carry weightage. ***Marks :70 (Weightage : 35 %)***

Section A [Marks: 35]

Apex assembles computers in a plant located in Mohali. The warehouse is located in Nagpur. Apex sells its computers in 8 market nodes. The demand at these nodes is given below along with the unit cost of transportation.

	Marketing nodes								
From/To	Agra	Bhandara	Cuttak	Daultabad	Erode	Farukhabad	Guntur	Hubli	Supply
Plant(Mohali)	14	24	21	20	21.5	19.	17	30	100
Warehouse(Nagpur)	24	15	28	20	8.5	19.5	24	28	45
Demand	22	14	18	17	15	13	15	20	

a) Formulate an appropriate model. [Marks: 5]

The Distribution manager of Apex, Mr Manish wishes to investigate potential benefits of locating a cross-docking facility near the markets in Daultabad, Erode, and Farukhabad.. This facility would receive the produces from the plant and the warehouse and immediately dispatch them to these three market nodes. The unit cost of such transportation is as follows:

From/To	Daultabad	Erode	Farukhabad
Cross docking facility	6	5	5

From/To	Cross docking facility
Plant(Mohali)	11
Warehouse(Nagpur)	10

There is a handling charge of 2 units for each product transshipped through the eross dock facility and a maximal capacity of 30 products per week that can flow through there.

b) Formulate an appropriate model [Marks: 7]

c) List the advantages and disadvantages of cross docking facility. [Marks: 2]

With respect to the cross-docking situation, Mr Manish is also toying with the idea of incorporating the following objectives:.

1. Minimize the extent to which the total transportation cost at "Erode" exeeeds Mu 5,000 units
2. Minimize extent to which the total warehouse space at the cross-docking facility falls short of 30 units(assume necessary data)
3. Minimize the extent to which total cost of transportation from Nagpur exceed Mu 12,000

d) Formulate an appropriate model an explain implications of the same. [Marks: 7]

The defective computers can be sent by any of the sales nodes (A to H to warehouse and then warehouse shall send these items to Mohali.) There could be a variety of reasons for such return besides quality.

e) Describe an appropriate process to handle reverse logistics function at Apex. [Marks: 7]

f) List at least 4 performance indicators from Reverse logistics point of view. [Marks: 4]

g) Explain how CPFR (Collaborative Planning. Forecasting & Replenishment) will help Apex in managing the supply chain. [Marks: 3]

See Section B Overleaf

Section B [Marks: 35]

Read the situation and answer the questions given below:

The Friendly Retail Company (FRC) is a collection of small consumer electronic retail stores (Selling items such as TV, DVDs, VCRs, Home Theatres etc.). These items are procured from a variety of suppliers such as Samsung, BPL, LG, Videocon etc. FRC also sales unbranded local goods. FRC is known for its personal and efficient service. Sushant, the Viee President of Operations prides himself on running one of the most efficient operations in the electronics retail industry. One of the main tools for this efficiency is a computer system based on mini-desktop system (called as FRC-Excel) that allows FRC to closely monitor sales progress and inventory turnover rates. FRC-Excel was brought and is currently maintained by Acme Computer Services (ACS). ACS and FRC have had an excellent and mutually profitable relationship for the past 10 years. FRC maintains a small staff of three people to run the FRC-Excel. Margins at FRC are about half of industry averages. Return on Investment is 7.0 percent. Recently, Sushant read an article in *Supply Chain Management Review* that described how companies were lowering costs and improving quality, delivery, and competitive capability through a variety of initiatives. Sushant feels that time, cost, and quality are all key issues at FRC.

With the onset of promising market, fuelled by growth in consumer electronics and entry of multi-nationals, FRC is also planning a bold strategic move into the consumer electronic retail industry. FRC plans to phase out all of its current smaller retail stores and mold its business around large super-stores. The first store will be the showcase and model for future stores. Jitendra, the MD of FRC, has envisioned a futuristic computer system (based on the logic of any ERP system) to support his new store concept. The new ERP will provide all the functionality of the current system (accounts payable, accounts receivable, general ledger, purchasing, inventory control, sales analysis) and have a fully integrated point-of-sale function. Jitendra envisions a "paperless" sales floor where all transactions and merchandise reservations are handled by the system. Additionally, the new system will have an optical bar code reading capability to facilitate customer transactions. The first super-store will open around June end in Gurgoan. FRC plans to open at least two other super-stores in the next six months.

a) List at least 3 characteristics peculiar of a retail supply chain such as FRC. Base on these, list the functionality expected from the new ERP system. [Marks:7]
b) Explain the challenge in developing SCOR for retailing industry such as FRC compared to a manufacturing company. [Marks:7]
c) Be as creative as possible in listing various processes and draw a flow diagram for at least one process of FRC [Marks:7]
d) With respect to the above process, develop a SCOR based performance system for FRC. [Marks:7]
e) Explain the concepts of "coordination" and "collaboration" in the context of FRC [Marks:7]