

GANPAT UNIVERSITY

B. Tech. Semester: III (EE/Civil/BM&IME/MC/EC/IT) Engineering

Regular Examination November – December 2013

(20S301)Supply Chain Management-Planning

Time: 3 Hours

Total Marks: 70

- Instruction:**
1. Attempt **all** questions.
 2. Figure to **right** indicate **full** marks of the question.
 3. Answer to each section must be written in **separate** answer book.
 4. Assume suitable data, if **necessary**.
 5. Draw sketches whenever **required**.

Section-I

Que.-1 (a) Consider the purchase of a can of detergent at a convenience store. 6
Describe the various stages in the supply chain and the different flows involved.

(b) Describe design phases in supply chain. 6

OR

Que.-1 (a) Give difference between demand uncertainty and implied demand 6
uncertainty. Also explain the implied uncertainty spectrum with example.

(b) Describe Supply chain for Dell computer. What decisions they have 6
made to be successful in the PC market.

Que.-2 (a) How could auto manufacturer increase responsiveness through its 5
facilities?

(b) Distinguish between 'Push' and 'pull' view of SCM. 6

OR

Que.-2 (a) Explain the role of network design in the supply chain. 6

(b) How could a grocery retailer use inventory to increase the 5
responsiveness of the company's supply chain?

Que.-3 (a) Explain following in terms of network design. 6

1. Tariffs and Tax incentives.

2. Technological factors.

- (b) Explain: Manufacturer storage with direct shipping. 6

Section – II

- Que.-4 (a) Describe the basic principle of DCFs and how they can be used to compare stream of cash flows. 6
- (b) What is the role of safety inventory in the supply chain? 6

OR

- Que.-4 Draw Decision tree for the following problem. And Determine the present value of expected profit for Period 1 for spot market analysis. 12

One thousand square feet of warehouse space is required for every 1,000 units of demand, and the current demand at Trips Logistics is for 100,000 units per year. The manager decides to use a multiplicative binomial representation of uncertainty for both demand and price. From one year to the next, demand may go up by 20 percent with a probability of 0.5 or go down by 20 percent with a probability of 0.5. The probabilities of the two outcomes are unchanged from one year to the next. The general manager can sign a three-year lease at a price of \$1 per square foot per year. Warehouse space is currently available on the spot market for \$1.20 per square foot per year. From one year to the next, spot prices for warehouse space may go up by 10 percent with probability 0.5 or go down by 10 percent with probability 0.5 according to a binomial process. The probabilities of the two outcomes are unchanged from one year to the next.

The general manager feels that prices of warehouse space and demand for the product fluctuate independently. Each unit Trips Logistics handles results in revenue of \$1.22 and Trips Logistics is committed to handling all demand that arises. Trips Logistics uses a discount rate of $k = 0.1$ for each of the three years.

- Que.-5 (a) Why is it important to consider uncertainty when evaluating supply chain design decisions? 6
- (b) Explain Impact of Aggregation on safety inventory. 5

OR

- Que.-5 (a) Explain the role of transportation in a supply chain. 6
- (b) Explain the role of pricing and revenue management in a supply chain. 5
- Que.-6 (a) Suppose that a two wheeler manufacturer buys tyres from a local under at rs.4.00 per tyre. On average, he uses 50,000 tyres each year, Every time an order is placed on ordering cost of rs.8, 000 is incurred regardless of the number of tyres ordered. The holding cost of tyre is twenty percent per year. 6
1. How many tyres should be purchased each time an order is placed?
 2. To satisfy annual demand, how many times in a year should the order be placed for the tyres?
- (b) Explain modes of transportation and their performance characteristics. 6

END OF PAPER