

Unit 9 - Week 7

Course outline

How does an NPTEL online course work?

Practice Assignment

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Lecture 20.1: Supply Chain Models-I

Lecture 20.2: Supply Chain Models-II

Lecture 20.3: Supply Chain Models-III

Lecture 21.1: Supply Chain Models-IV

Lecture 22.1: Modeling Example: Societal Ageing

Lecture 23.1: Testing System Dynamics Models: Introduction with example 1

Lecture 23.2: Testing System Dynamics Models: Example 2

Lecture 23.3: Testing System Dynamics Models: Example 3

Download Videos

Weekly Feedback

Quiz : Assignment 07

Study Material for Week 7

Week 8

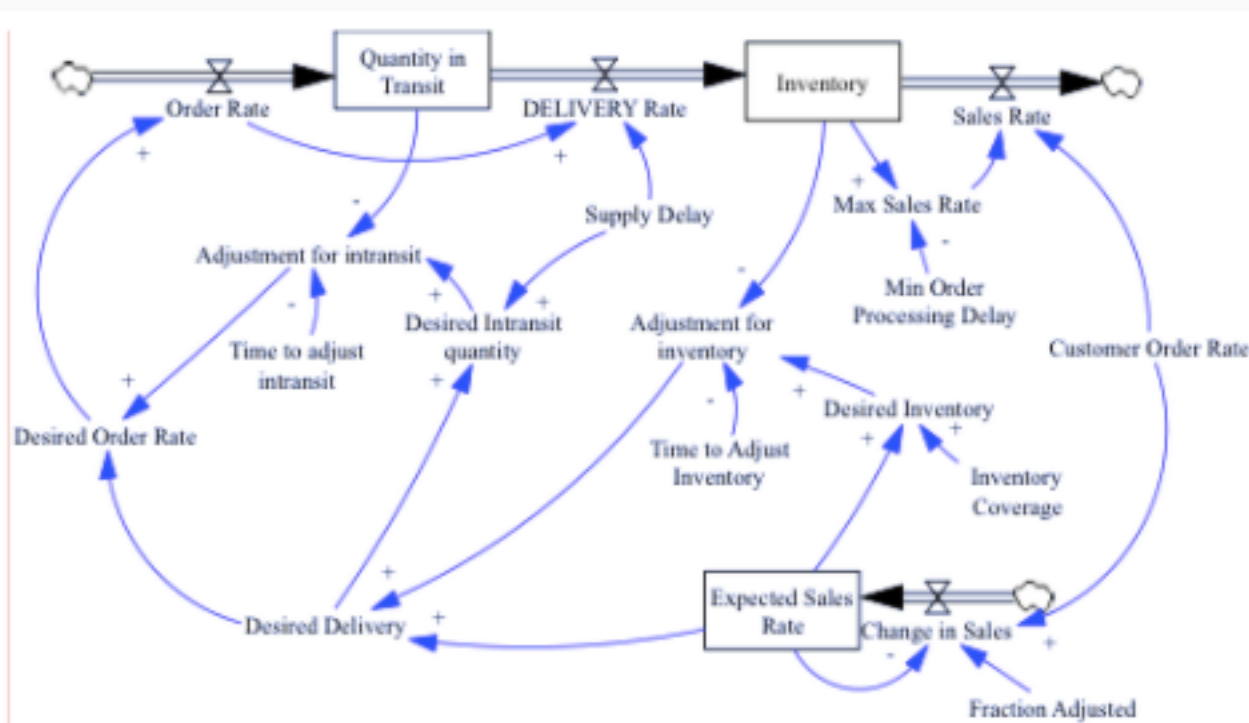
Text Transcripts

Assignment 07

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

Due on 2020-03-18, 23:59 IST.

1) SFD model of a Retailer is shown in figure below. Download the Vensim model of the same (retailer.mdl file). Go over the equations and parameter settings carefully. **2 points**



Model the following scenarios by changing the equations in Vensim. Simulate them; and then answer the questions below.

- ScenarioA(default): Time to adjust intransit = 3 Time to adjust Inventory = 3
- ScenarioB: Time to adjust intransit = 1.5 Time to adjust Inventory = 3
- ScenarioC: Time to adjust intransit = 3 Time to adjust Inventory = 1.5

With the scenarios given above, answer Q1, Q2 and Q3. Click for mdl file: https://drive.google.com/file/d/1Hq4d3x4buNY8t5OcOYH06_DwXGxiv3je/view?usp=sharing

In which scenario(s) does the Order Rate stabilise at 20?

- Scenario A
- Scenario B
- Scenario C

No, the answer is incorrect. Score: 0

Accepted Answers: Scenario A, Scenario B, Scenario C

2) Which scenario(s) takes the longest time for Order Rate to stabilise? **2 points**

- Scenario A
- Scenario B
- Scenario C

No, the answer is incorrect. Score: 0

Accepted Answers: Scenario C

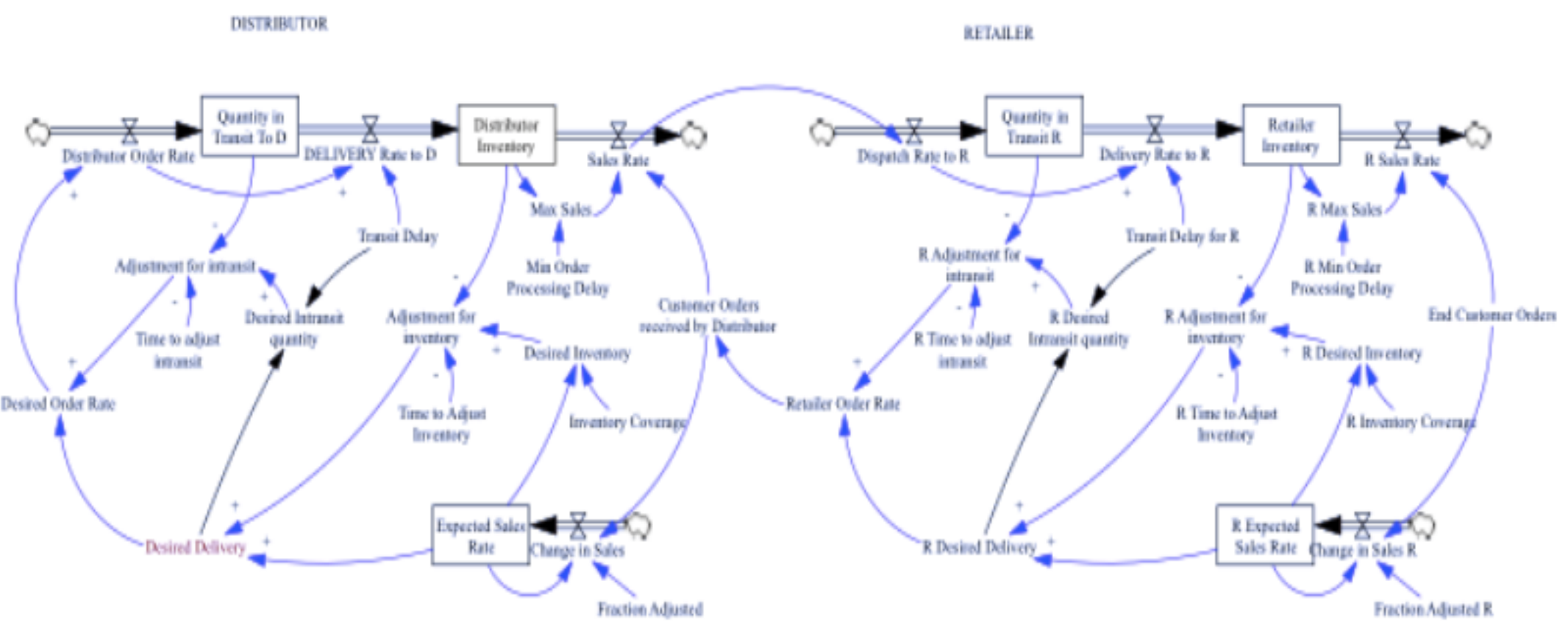
3) In which scenario(s) is oscillatory behaviour observed in Order Rate? **2 points**

- Scenario A
- Scenario B
- Scenario C

No, the answer is incorrect. Score: 0

Accepted Answers: Scenario C

4) SFD model of a Retailer and Distributor is shown in figure below. Download the Vensim model of the same (RD.mdl file). Go over the equations and parameter settings carefully. **2 points**



For both Retailer & Distributor the delay is the same (Base case scenario)

- Transit Delay for R, is 3rd order material delay with a delay of 6 days.
 - Quantity in Transit R is 60 (initial value)
- Transit Delay, is 3rd order material delay with a delay of 6 days.
 - Quantity in Transit to D is 60 (initial value)

Model the following scenarios by changing the equations in Vensim. Simulate these scenarios and the base case; and then answer the questions Q4-Q6. Click for mdl file: https://drive.google.com/file/d/1yXkz1DHuvSIH2GTDVQ_3vHtgc9Zu7UL/view?usp=sharing

- Scenario A:
 - Transit Delay for R (in RETAILER) is 3rd order material delay with a delay of 3 days.
 - Quantity in Transit R is 30 (initial value)
 - Transit Delay (in DISTRIBUTOR), is 3rd order material delay with a delay of 6 days.
 - Quantity in Transit to D is 60 (initial value)

- Scenario B:
 - Transit Delay for R (in RETAILER) is 3rd order material delay with a delay of 6 days.
 - Quantity in Transit R is 60 (initial value)
 - Transit Delay (in DISTRIBUTOR) is 3rd order material delay with a delay of 3 days.
 - Quantity in Transit to D is 30 (initial value)

- Scenario C:
 - Transit Delay for R (in RETAILER) is 3rd order material delay with a delay of 3 days.
 - Quantity in Transit R is 30 (initial value)
 - Transit Delay (in DISTRIBUTOR) is 3rd order material delay with a delay of 3 days.
 - Quantity in Transit to D is 30 (initial value)

Which of the following scenario(s) has a highest peak for Retailer Order Rate?

- Base case
- Scenario A
- Scenario B
- Scenario C

No, the answer is incorrect. Score: 0

Accepted Answers: Base case, Scenario B

5) Which of the following scenario(s) has a highest peak for Distributor Order Rate? **2 points**

- Base case
- Scenario A
- Scenario B
- Scenario C

No, the answer is incorrect. Score: 0

Accepted Answers: Base case

6) Which of the following statements are true about the behavior of Distributor Order Rate? **2 points**

- Fluctuations in Base case > fluctuations Scenario A > fluctuations Scenario C
- Fluctuations in Base case > fluctuations Scenario B > fluctuations Scenario C
- Fluctuations in Base case < fluctuations Scenario A < fluctuations Scenario C
- Fluctuations in Base case < fluctuations Scenario B < fluctuations Scenario C

No, the answer is incorrect. Score: 0

Accepted Answers: Fluctuations in Base case > fluctuations Scenario A > fluctuations Scenario C, Fluctuations in Base case > fluctuations Scenario B > fluctuations Scenario C