Solutions Manual

# Chapter 14: Lean Operations and Supply Chains

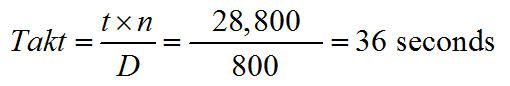
1.



Cognitive Domain: Knowledge

Difficulty Level: Easy

2a.



2b.

144/36 = 4 workers needed

Cognitive Domain: Knowledge

Difficulty Level: Easy

3.



Cognitive Domain: Knowledge

Difficulty Level: Easy

4.



Cognitive Domain: Knowledge

Difficulty Level: Easy

5a.



5b.



5c. There will be no difference in the total amount of system inventory.

Cognitive Domain: Comprehension

Difficulty Level: Medium

6a.



6b.



6c. A reduction from 5 to 3 hours (40% drop) in lead time drops inventory levels 40% to 1725.

Cognitive Domain: Comprehension

Difficulty Level: Medium

7. 

Cognitive Domain: Knowledge

Difficulty Level: Easy

8.



Cognitive Domain: Knowledge

Difficulty Level: Easy

9.



Cognitive Domain: Knowledge

Difficulty Level: Easy

10a.

Kanbans = 25 = (d x 175 x 1.25)/60

d = 6.857 per minute

10b.

Lead time = processing time only because waiting time is eliminated = 25 minutes

Kanbans = (6.857 x 25 x 1.25)/60 = 4

Cognitive Domain: Knowledge

Difficulty Level: Easy

11a.



Using a 9:6:4 ratio of sandals to dress shoes to sneakers results in times of 11.36:7.57:5.05 sandals to dress shoes to sneakers.

11b. A mixed-model approach would produce nine sandals, six dress shoes, and four sneakers. This cycle would repeat 20 times each day to satisfy daily demand.

Cognitive Domain: Comprehension

Difficulty Level: Medium

12a. Mixed-model production would require 22 cars, 11 minivans, and six SUVs produced in a cycle.

12b. At 250 cars per day, this sequence would repeat 250/39 = 6.4 times.

Cognitive Domain: Comprehension

Difficulty Level: Medium

13a.



This is roughly a 3:2:1 ratio, so three sedans, two hatchbacks, and one SUV for a total of six cars produced in a cycle would make an appropriate mixed-model assembly sequence.

13b. They can produce 200 vehicles per day, divided by six cars in a cycle for 33.3 cycles per day.

Cognitive Domain: Comprehension

Difficulty Level: Medium

14a. The most granular sequence would be 3A – 2B – 1C – 2A – 2B – 1C – 3A – 2B – 1C – 2A – 1B – 1C, which would yield 10 As, seven Bs, and four Cs each time it was completed. Doubling the long sequence each day for 25 days would exactly equal their monthly demand.

14b. If you consider each event of ABC one cycle and disregard the minor variations, then there are eight cycles per day.

Cognitive Domain: Comprehension

Difficulty Level: Medium

Screen application

Schedule phone interview

Conduct the phone interview

Schedule face-to -face interview

Conduct the face to face interview

Make a decision on applicant

2 days

200 minutes

40 minutes

5 minutes

90 minutes

20 minutes

10 minutes

1 day

5 days

5 days

2 days

15.

Notify other applicants

HR system

Close position

Schedule training for newbie

Human resources

VAT

365 min

LEAD

15 days

Cognitive Domain: Application

Difficulty Level: Hard