NOVEMBER 12, 2015

HOMEWORK 9
PRODUCTION PLANNING & SCHEDULING
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Section 8.1

Problem 6

The planned order release for components A, B, and C are given below in Table 1.

Table 1: Lot for Lot Planned Order Release for Three Components

Week:	8	9	10	11	12	13	14	15	16
Component A - P.O.R (L4L):		200	200	80	80	200	400	400	400
Component B - P.O.R (L4L):	100	100	40	40	100	200	200	200	
Component C - P.O.R (L4L):	400	400	160	160	400	800	800	800	

Section 8.2

Problem 11

Table 2 below shows the Economic Order Quantities for Motherboards (EOQ_1), DRAM Chips (EOQ_2), and Add-In Boards (EOQ_3). The EOQ planned order release for each of the three components are shown below in Table 3. The gross requirements for each of the three components are shown below in Table 4.

Table 2: EOQ for Three ICU2 Components

Metric	Value	Units
EOQ_1	399	[motherboard/order]
EOQ_2	8,916	[DRAM Chip/order]
EOQ_3	308	[Add-In Board/order]

Table 3: EOQ Planned Order Release for Three ICU2 Components

Week:	3	4	5	6	7	8	9	10
Motherboards - P.O.R (EOQ):	399		399			399		
DRAM Chips - P.O.R (EOQ):		17,833	17,833	8,916	8,916	8,916	26,749	
Add-In Boards - P.O.R (EOQ):			615	615	308	308	308	923

Table 4: Gross Requirements for Three ICU2 Components

Week:	6	7	8	9	10	11
Motherboard Gross Rqmts:	145	165	150	120	65	300
DRAM Chip Gross Rqmts:	13,050	14,850	13,500	10,800	5,850	27,000
Add-In Board Gross Rqmts:	435	495	450	360	195	900

Additional Problems

Problem 41

The gross requirements for each of the four components in the IT53 calculator is given below in Table 5.

Table 5: Gross Requirements for Four IT53 Components

Week:	8	9	10	11	12	13	14	15	16	17
Processor:	1,200	1,200	800	1,000	1,000	300	2,200	1,400	1,800	600
Buttons:	48,000	48,000	32,000	40,000	40,000	12,000	88,000	56,000	72,000	24,000
LCD Display:	1,200	1,200	800	1,000	1,000	300	2,200	1,400	1,800	600
Solar Cells:	4,800	4,800	3,200	4,000	4,000	1,200	8,800	5,600	7,200	2,400

Problem 42

The planned order release for the buttons component, using the silver meal heuristic, is given below in Table 6.

Table 6: Silver Meal Planned Order Release for IT53 Buttons

Week:	6	7	8	9	10	11	12	13	14
P.O.R (SM):	128,000			92,000			144,000		96,000

Problem 43

The planned order releases for the buttons component, using part period balancing and least unit cost methods, are given below in Table 7. The three-way comparison between the silver meal, part period balancing, and least unit cost methods is giving below in Table 8. Table 8 shows that the silver meal method results in the lowest expected total cost, whereas the part period balancing results in the highest expected total cost. The part period balancing shows to have the most balanced holding and set-up costs, whereas the silver meal has the most imbalanced holding and set-up costs. The preferred ordering policy in this example is the silver meal policy.

Table 7: Part Period Balancing & Least Unit Cost Planned Order Releases for IT53 Buttons

Week:	6	7	8	9	10	11	12	13	14
P.O.R (PPB):	168,000				140,000			152,000	
P.O.R (LUC):	96,000		124,000				144,000		96,000

Table 8: Three-Way Cost Comparison of Planned Order Releases for IT53 Buttons

Ordering Policy	Total Set-Up Cost	Total Holding Cost	Total Cost
P.O.R (SM):	$48.00	$25.60	$73.60
P.O.R (PPB):	$36.00	$54.00	$90.00
P.O.R (LUC):	$48.00	$28.40	$76.40

Problem 48

The planned order release for components F, G, and H are given below in Table 9.

Table 9: Lot for Lot Planned Order Release for Three Components in Two Products

Week:	15	16	17	18	19	20	21	22	23
Component F - P.O.R (L4L):		484	472	408	220	220	330	738	
Component G - P.O.R (L4L):	372	408	1020	910	460	268	548	360	840
Component H - P.O.R (L4L):		488	496	512	352	216	300	636	