

Note:

1. All the data in this homework are fictitious.
2. MPS/MRP forms are available on Canvas.

Problem 1

Monami is a manufacturer of office supplies. They have just released their catalog with a new model of fountain pen. The following table provides the booked orders as well as the forecasts for the next 12 weeks for this new fountain pen.

Week	1	2	3	4	5	6	7	8	9	10	11	12
Booked Orders	340	240	380	370	350	230	220	230	390	370	220	290
Forecasts	320	260	320	220	330	400	240	270	370	260	300	200

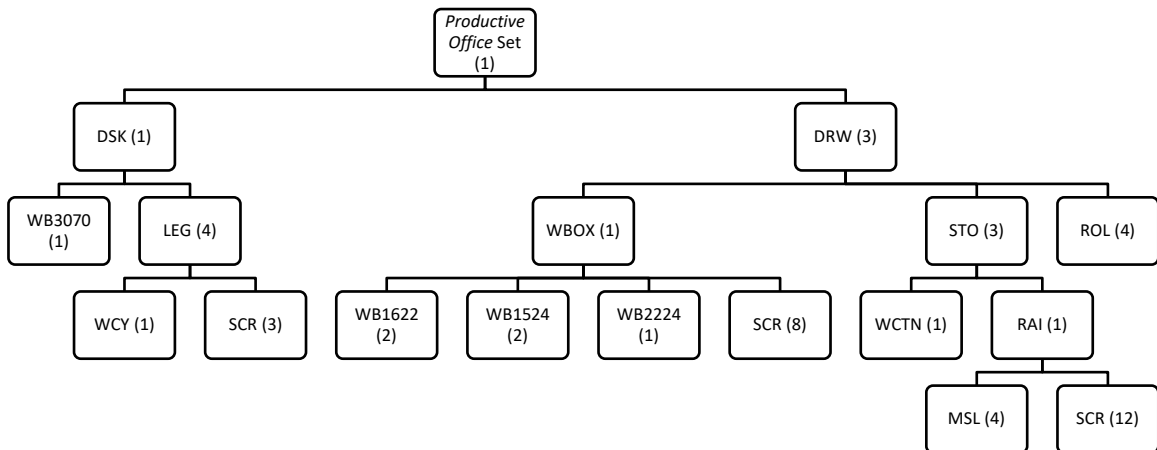
Monami produces the fountain pen in batches of 1,000 units. The current inventory position (at the beginning of week 1) is 500 units.

- a. Prepare a master production schedule (MPS) for weeks 1 through 12. Indicate the projected available, MPS replenishment and available-to-promise (ATP) quantities.
- b. One of *Monami*'s customers wants to place an order for 100 fountain pens to be completed and shipped in week 8. Should the master scheduler accept the order? If yes, explain how the order should be filled. If no, explain why not.

Problem 2

Monami is also rolling out the new *ProductiveOffice* set, a new set of sturdy office furniture. The *ProductiveOffice* set consists of one desk (DSK) and three drawer units (DRW). The desk consists of one 30"x70" wooden board (WB3070), and four leg units (LEG). Each leg unit consists of one 31" wooden cylinder (WCY) and 3 screws (SCR). A drawer unit consists of one 16"x22"x25" wooden box (WBOX), 3 storage units (STO) and 4 rollers (ROL). Each wooden box consists of two 16"x22" wooden boards (WB1622), two 15"x24" wooden boards (WB1524), one 22"x24" wooden board (WB2224), and 8 screws (SCR). Each storage unit consists of one 15"x20"x7" wooden container (WCTN) and one rail set (RAI), which is attached by 4 metal sliders (MSL) and 12 screws (SCR). Note that *Monami* uses one universal type of screw for all products.

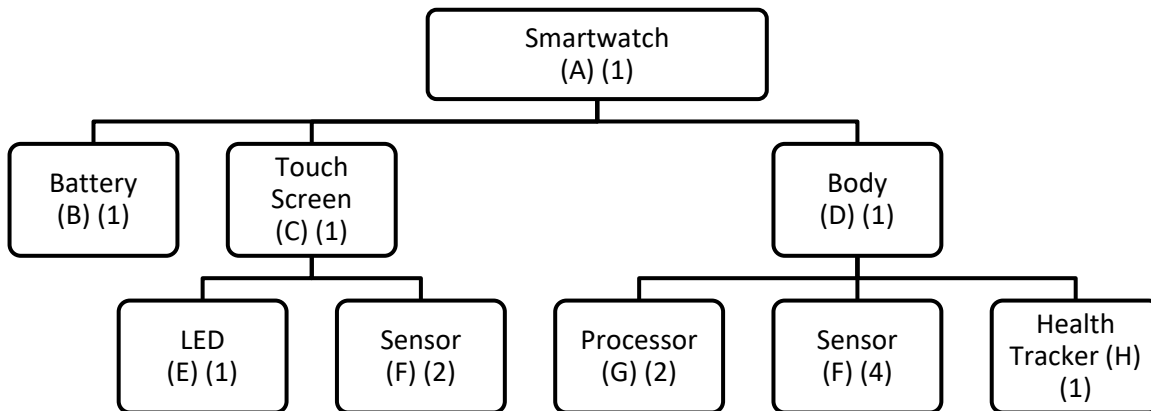
- a. Develop an indented bill of material (BOM) showing the low level codes for each component.
Hint: You may want to use the product structure tree given below. Each number in brackets indicates the quantity required per unit of the item at next highest level.



- b. Calculate the total number of units of each component needed to make one *ProductiveOffice* set; list the quantities in order of level on the BOM (in a separate list), beginning with level 0.

Problem 3

FitnessTracker is a manufacturer of Smartwatch to track health condition. The product structure tree of one of its products is provided below:



Notes: (1) The letter is the code for the part (used later in the question). (2) The quantity in braces indicates the quantity required at the next higher level. For example, two units of item (F) (sensor) are required to make one unit of item (C) (touch screen).

The master production schedule for the Smartwatch (item A) is listed below:

Week	1	2	3	4	5	6	7	8
MPS Replenishment	0	0	8,700	9,300	6,900	7,200	8,300	9,700

Additional information regarding the inventory policies for each item is listed below:

Item	Beginning inventory	Safety stock	Lead time (weeks)	Lot size	Scheduled receipts	
					Quantity	Week
A	0	0	2	L4L	N/A	N/A
B	9,000	400	1	L4L	3,000	2
C	22,000	900	2	L4L	2,000	1
D	5,000	500	1	L4L	12,000	1
E	17,000	3,000	2	FOQ=10,000	13,000	2
F	60,000	6,000	1	FOQ=50,000	40,000	3
G	27,000	4,000	2	FOQ=20,000	8,000	2
H	14,000	2,000	1	FOQ=6,000	11,000	4

Notes: (1) L4L = Lot for lot. (2) Scheduled receipt indicates the quantity and timing of any incoming orders, e.g., 13,000 units of item E are scheduled to arrive in week 2.

- a. Prepare a schedule of planned order releases for end-item A based on the master schedule.
- b. Please generate the MRP charts for weeks 1-8 for items C, D, F and G.