You need to log all activities to “log.txt”.
Activities include:
New Load Order: A new load order is generated by a part worker at the beginning of an iteration.
New Pickup Order: A new pickup order is generated by a part worker at the beginning of an iteration.
Wakeup-Notified: A sleeping thread wakes up upon receiving notification and CAN perform some work.
If a sleeping thread receives notification and CANNOT do anything, the worker will immediately go back to sleep. In this case, do not print. An example for this: A sleeping part worker still needs a type A part. Upon receiving notification, the worker sees no type A part available and immediately go back to sleep. Do not print anything in this case.

Wakeup-Timeout: A sleeping thread wakes up due to timeout event.

The overall simulation starts at time= 0 us.

In the following, all comments are in bold fond. They should not appear in your printing.
First, all printings related to part workers are shown, followed by printings related to product workers.
…

Current Time:XXXXXXXus //The time after parts generated and moved to the buffer area.
Iteration 1 **//Note that iteration counts from 1 to 5**
Part Worker ID: 8**//worker id counts from 1**
Status: New Load Order
Accumulated Wait Time: 0 us**//This worker has not had sleep time in this iteration.**
Buffer State: (2,2,3,2,2)
Load Order: (2,0,1,1,1)
Updated Buffer State: (4,2,4,3,3)
Updated Load Order: (0,0,0,0,0)

Current Time:XXXXXXXus //**The time after parts generated and moved to the buffer area.**
Iteration 1 //**Note that iteration counts from 1 to 5**
Part Worker ID: 8//**worker id counts from 1**
Status: New Load Order
Accumulated Wait Time: 0 us**//This worker has not had sleep time in this iteration.**
Buffer State: (5,2,3,2,2)
Load Order: (2,0,1,1,1)
Updated Buffer State: (5,2,4,3,3)
Updated Load Order: (2,0,0,0,0)

….

Current Time:XXXXXXXus **//The time when the part worker wakes up and is able to do something.**
Iteration 2
Part Worker ID: 5
Status: Wakeup-Notified
Accumulated Wait Time: XXXXXX us**//Sleep time when the part worker wakes up and is about to do something**
Buffer State: (3,2,3,2,3)
Load Order: (1,0,0,0,1)
Updated Buffer State: (4,2,3,2,3)
Updated Load Order: (0,0,0,0,1)
…
Current Time:XXXXXXXus **//The time when the part worker wakes up and is able to do something**
Iteration 2 //Note that iteration counts from 1 to 5
Part Worker ID: 4
Status: Wakeup-Notified
Accumulated Wait Time: XXXXXX us
Buffer State: (3,2,3,2,2)
Load Order: (1,0,0,0,1)
Updated Buffer State: (4,2,3,2,3)
Updated Load Order: (0,0,0,0,0)

…
Current Time:XXXXXXXus **//The time when the part worker wakes up due to timeout event.**
Iteration 2
Part Worker ID: 9
Status: Wakeup-Timeout
Accumulated Wait Time: XXXXXX us
Buffer State: (3,2,3,2,2)
Load Order: (1,0,0,0,1)
Updated Buffer State: (3,2,3,2,2)
Updated Load Order: (1,0,0,0,1)

//The following are related to product workers

Current Time:XXXXXXXus **//The time when the product worker arrives at the buffer area.**
Iteration 2
Product Worker ID: 5
Status: New Pickup Order
Accumulated Wait Time: 0 us
Buffer State: (4,3,4,0,1)
Pickup Order: (3,1,0,0,1)
Local State: (0,0,0,0,0)//**Parts moved back from previous iteration(s) due to timeout.**
Cart State: (0,0,0,0,0) //**Parts already picked up and placed on cart; will be moved back in case of timeout.**
Updated Buffer State: (1,2,4,0,0)
Updated Pickup Order: (0,0,0,0,0)
Updated Local State: (0,0,0,0,0)
Updated Cart State: (3,1,0,0,1)
Current Time: XXXXXX us //**The time when all parts get moved back and assembled into a product.**
Updated Local State: (0,0,0,0,0)
Updated Cart State: (0,0,0,0,0)
Total Completed Products: 6//**by all product workers**

…

Current Time:XXXXXXXus **//The time when the product worker arrives at the buffer area.**
Iteration 2
Product Worker ID: 5
Status: New Pickup Order
Accumulated Wait Time: 0 us
Buffer State: (2,3,4,0,1)
Pickup Order: (3,1,0,0,1)
Local State: (0,0,0,0,0)//**Parts moved back from previous iteration(s) due to timeout.**
Cart State: (0,0,0,0,0) //**Parts already picked up and placed on cart; will be moved back in case of timeout.**
Updated Buffer State: (0,2,4,0,0)
Updated Pickup Order: (1,0,0,0,0)
Local State: (0,0,0,0,0)
Cart State: (2,1,0,0,1)
Total Completed Products: 4//**by all product workers**
…

Current Time:XXXXXXXus **//The time when the product worker arrive at the buffer area.**
Iteration 3
Product Worker ID: 11
Status: New Pickup Order
Accumuated Wait Time: 0 us

Buffer State: (2,0,4,0,1)
Pickup Order: (1,2,0,0,0)
Local State: (1,1,0,0,0)//**Parts moved back from previous iteration(s) due to timeout.**
Cart State: (0,0,0,0,0) //**Parts already picked up and placed on cart; will be moved back in case of timeout.**
Updated Buffer State: (1,0,4,0,1)
Updated Pickup Order: (0,2,0,0,0)
Local State: (1,1,0,0,0)
Cart State: (1,0,0,0,0)
Total Completed Products: 12//**by all product workers**
…
Current Time:XXXXXXXus **//The time is when the product worker wakes up due to notification**
Iteration 3
Product Worker ID: 10
Status: Wakeup-Notified
Accumuated Wait Time: XXXXXX us
Buffer State: (2,0,4,0,1)
Pickup Order: (1,1,0,0,0)
Local State: (1,0,0,0,0)//**Parts moved back from previous iteration(s) due to timeout.**
Cart State: (1,0,1,0,0) //**Parts already picked up and placed on cart; will be moved back in case of timeout.**
Updated Buffer State: (1,0,4,0,1)
Updated Pickup Order: (0,1,0,0,0)
Local State: (1,0,0,0,0)
Cart State: (2,0,1,0,0)
Total Completed Products: 7//**by all product workers**
…
Current Time:XXXXXXX us **//The time is when the product worker wakes up due to notification**
Iteration 4
Product Worker ID: 11
Status: Wakeup-Notified
Accumuated Wait Time: XXXXXX us
Buffer State: (2,0,4,0,1)
Pickup Order: (1,0,0,0,0)
Local State: (1,1,0,0,0)//**Parts moved back from previous iteration(s) due to timeout.**
Cart State: (1,0,1,0,0) //**Parts already picked up and placed on cart; will be moved back in case of timeout.**
Updated Buffer State: (1,0,4,0,1)
Updated Pickup Order: (0,0,0,0,0)
Local State: (1,1,0,0,0)
Cart State: (2,0,1,0,0)
Current Time: XXXXXX us //**The time when all parts get moved back and assembled into a product.**
Updated Local State: (0,0,0,0,0)
Updated Cart State: (0,0,0,0,0)
Total Completed Products: 9//**by all product workers**

…
Current Time:XXXXXXX us **//The time is when the product worker wakes up due to timeout**
Iteration 3
Product Worker ID: 10
Status: Wakeup-Timeout
Accumuated Wait Time: XXXXXX us
Buffer State: (3,0,4,0,1)
Pickup Order: (0,1,0,0,0)
Local State: (1,1,0,0,0)//Parts moved back from previous iteration(s) due to timeout.
Cart State: (1,0,1,0,0) //Parts already picked up and placed on cart; will be moved back in case of timeout.
Updated Buffer State: (3,0,4,0,1)
Updated Pickup Order: (0,1,0,0,0)
Local State: (1,1,0,0,0)
Cart State: (1,0,1,0,0)
Current Time: XXXXXX us **//The time when all parts get moved back.**

Updated Local State: (2,1,1,0,0)
Updated Cart State: (0,0,0,0,0)
Total Completed Products: 9//**by all product workers**
…