1. [5 pts.] Exercise 1 in Nutt, Chapter 12. Your answer must be written concisely and in complete sentences.

2. [15 pts.] Assume that we have 4 blocks of main memory and the page reference stream $\omega = 2 3 4 3 2 4 3 2 4 5 6 7 5 6 7 4 5 6 7 2 1$ is generated by a process. For each algorithm, show the page allocation sequence and determine the number of page faults incurred. Include an indication of where each page fault occurs in your allocation sequence diagram.
   - Belady’s optimal algorithm
   - FIFO algorithm
   - LRU approximation algorithm

3. [10 pts.] In pseudocode, write an algorithm to perform address translation in a demand paging system. Be sure to clearly identify the inputs, outputs, and global data used in your algorithm. Also, you should handle the situation when the address referenced resides in a page not in main memory. You may assume that virtual addresses are within the valid address space of the process.