CSC 262 Operating Systems Course
Midterm #2
Due Date: Nov 21 Monday, until mid-night (Northampton local time)

Question 1 (20 pts)

Briefly answer below questions.

a. What is a device driver
b. What is Direct Memory Access
c. What is Page Fault
d. What is TLB
e. What is base register
f. What is logical address?
g. What is the page replacement algorithm?
h. What is a Cache Memory in general?
i. Simply compare segmentation and paging.
j. For the paging with a predefined page size, give a formula for the frame size.

Question 2 (50pts)

Given the page table below,

Page Table

Page #	Frame #
1	8
2	11
3	4
4	7
5	2

Assume the page size is 150 units.

CPU requests the below logical addresses:
170, 900, 310,400, 600, 180, 210, 550
Find the physical address of each logical address above.

Assume you have a cache for holding page table and you can hold only 3 pages at a time. Which of the below cache replacement algorithms would you prefer and why?

- Most Frequently used
- Least frequently used
- First in First out

Question 4(30 pts)

Given below allocation and need values for each process, and available values on the operating system. Detect if there is any deadlock and give an order of execution if there is not any deadlocks.

	Allocation	*Need*	*Available*
	A B C	*A B C*	*A B C*
P_0	0 0 0	7 5 3	2 3 0
P_1	3 1 2	0 1 0	
P_2	3 0 2	6 0 0	
P_3	2 2 1	0 0 1	
P_4	0 0 2	4 3 1	