CSC 4420
Computer Science Operating Systems
Homework 3
25 points – 4 questions

Answer the following questions.

Question 1 (8 points): Given six memory partitions of 300 KB, 600 KB, 350 KB, 200 KB, 750 KB, and 125 KB (in order), how would the first-fit, best-fit, and worst-fit algorithms place processes of size 115 KB, 500 KB, 358 KB, 200 KB, and 375 KB (in order)? NOTE: After allocating a process to a memory partition, you have to calculate the remaining memory of that partition to be used for the rest of the processes.

Question 2 (8 points): Assuming a 1-KB page size and a 32-bit CPU (i.e., each logical and physical address is 32-bit long), what are the page numbers and offsets for the following logical address references (provided as decimal numbers)? To get points, you must show how you obtain the page number and offset from the binary version of each logical address. Then convert the found binary page number and offset to decimal.

a) 3085
b) 42095
c) 215201
d) 650000
e) 2000001

Question 3 (6 points): Consider the following segment table:

Segment	Base	Length
0	219	600
1	2300	14
2	90	100
3	1327	580
4	1952	96

Show the result of address binding for the following logical addresses:

a) 0,430
b) 1,10
c) 2,500
d) 3,400
e) 4,112

Question 4 (3 points): Explain the difference between internal and external fragmentation.