**SOLUTION**

**Spring 2021 CSC332,Sec M Quiz 3 100 Points**

**75 Min.**

**Submit your answers as an attachment and upload it** rather than directly typing your answers in BB system. Use  **Notepad or Word files**.

Q1. (50 Points) (Memory)

Consider the memory management scheme using paging.

Let T be the page frame number column in the page table. Assume that the page table for process 2 satisfies T[i]=2i+3 for all pages i.

Assume that the page size is 64 bytes.

Convert the **PHYSICAL ADDRESS 1000**  in process 2 to

the corresponding **logical address**. All numbers here and in your answer are in decimal. **Show detailed calculations.**

**Solution:**

Page frame# = 1000/64 = 15

Offset = 1000 – 15\*64 = 40

2i+3 = 15, so i= 6 = page#

Logical addr = 6\*64 + 40 = 384+40 = 424

Q2. (50 Points) (Threads)

Cobegin-Coend are as discussed in slides.

Assume that **all** **the variables before cobegin are in heap; so they are shared** with the children threads.

As in slides, after coend is done (i.e., children thread have finished), the parent thread resumes execution.

What is the **MINIMUM** value printed in this code?

Give one scenario that results in this output.

int X=5;

cobegin

S11: X = X + 1; S21: X = X - 1;

S12: X = X + 1; S22: X = X – 1;

coend;

print(X);

**Solution:**

Answer=3.

Scenario:

Thread 1 Thread 2

As part of S21, load X in R2

Now R2 == 5

Finish S11, S12

exit

Finish rest of S21

(decrement R2, store in X)

Now X==4

Finish S22

Now X == 3

exit

Now parent thread prints 3.