Course:	**Operating Systems**	Course Code:	**CS205**
Program:	**BS (Computer Science)**	Semester:	**Spring 2019**
Due Date:	**23-4-2019**	Total Marks:	**5**
Section:	**C**	Weight	**5**
Exam:	**Quiz 3**	Page(s):	**1**
Name:		Roll #:	

1. **A machine has 48-bit virtual addresses and 32-bit physical addresses. Pages are 8K.**

- **How many entries are needed for a conventional page table?**	2^35 entries
- **How many entries are needed for an inverted page table?**	2^19 entries

2. **Consider a logical address space of 32 pages with 1,024 words per page, mapped onto a physical memory of 16 frames.**

- **How many bits are required in the logical address?**	**15 bits**
- **How many bits are required in the physical address?**	**14 bits**

3. **Consider the two-dimensional array A: int A[][] = new int[100][100]; where A[0][0] is at location 200, in a paged memory system with pages of size 200 bytes. Each int type needs 4 bytes and A is stored in row-major order (as in C/C++). A small process is in page 0 (locations 0 to 199) for manipulating the array; thus, every instruction fetch will be from page 0. For three page frames, how many page faults are generated by the following array-initialization loops, using LRU replacement, and assuming frame 0 has the process in it and the other two frames are initially empty?**

- **for (int j=0; j < 100; j++)**
     for (int i=0; i< 100; i++)
       A[i][j]=0;
	100x100

- **for (int i=0; i< 100; i++)**
     for (int j=0; j < 100; j++)
       A[i][j]=0;
	200