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| **National University of Computer and Emerging Sciences, Lahore Campus** | | | | | | |
| C:\Users\saif\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\final design.jpg | **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 | | | |
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| 1. **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** | | |
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| 1. **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** | | |