**CS 374 – Operating Systems**

**Final Exam Study Guide**

This exam will cover elements since the midterm, emphasizing chapters 7-8.

There will be a problem involving paging systems, calculating the size of memory. This is like problem 1 from Chapter 8 in your text.

There will be two problems with frame/page tables something like this, but one going from frame table to page, and the other in the opposite direction much like the last lab:

1. Consider the following frame table in a paging system. If page tables are used instead of frame tables, show the contents of the corresponding page tables.

|  |  |  |
| --- | --- | --- |
| 0 | 2 | 3 |
| 1 | 5 | 1 |
| 2 | 5 | 0 |
| 3 | 8 | 0 |
| 4 | 8 | 1 |
| 5 | 2 | 0 |
| 6 | 5 | 2 |
| 7 | 2 | 1 |

There will be a problem asking you to illustrate the actions of memory requests and releases under the Buddy System, which we’ve worked examples of.

There will be a problem doing calculation of disc retrieval like we did in class with fixed and mobile head platter discs.

**Remainder of exam**: Multiple Choice Problems.

There will be questions about *paging and segmentation*. Expect some questions on management of physical and virtual memory. Know the plusses and minuses of segmentation and paging; similarly for frame tables vs. page tables. Definitely know the terms below!

|  |  |  |  |
| --- | --- | --- | --- |
| Page | Page frame | Frame table | Page fault |
| Demand paging | Segment | Page table | Segment table |
| Thrashing | Virtual address | Physical address | Virtual memory |
| Context switch | Livelock | Race Condition | Starvation |
| Quantum | Process | External fragmentation | Internal fragmentation |
| Deadlock | Process Control Block (PCB) | Compaction | Defragmentation |
| Garbage collection | Binding | Linking | Loading |
| Load Module | Static | Dynamic | Binding |