Final Exam Coverage:

* Signals + signal handling
  1. Guess output
  2. Shell (MP03) questions
  3. Sig handling semantics (e.g. non-queueing, pending/blocked vectors)
  4. Signal types 🡪 SIGCHLD
  5. Macros 🡪 WIFEXITED, WEXITSTATUS (semantics) ------- (end of process management)
* Memory hierarchy
  1. Motivation (discussion) 🡪 relative speeds, orginaization
  2. Caching
     + Algorithms (policies)
       - Direct mapped
       - Fully associative
         1. Replacement policy: LRU vs FIFO vs LFU (pros/cons) - discussion
       - Set associative
         1. Terminology – (“n-way …..”)
         2. Replacement policy: LRU vs FIFO vs LFU (pros/cons) - discussion
     + Write-related policies
       - Write around/through/back/allocate
     + Predict miss/hit – rate questions
     + Collisions/ Thrashing
     + “Cache-friendly” code
       - Locality, small working set size
       - Blocking (matrix example)
* Virtual Memory (DRAM <--> HDD)
  1. Simple relocation
  2. Segmentation
  3. Paging
     + - Conceptual (pros/cons)
       - Implementation details
       - Motivation for Virtual Memory
         1. Utilization
         2. Throughput
         3. Consistency and protection
     + Translation procedure (via Page Table & TLB)
     + Why do we need TLB?
* Dynamic Virtual Memory
  1. Context (vs Caching & VM implementation)
     + User vs System responsibilities
  2. Basic implementation issues & strategies
     + Free space tracking
     + Boundary tags
     + Implicit vs explicit
       - Performance implementation (pros/cons)
  3. **NO** implementation questions for DMA