# 期末考试模拟试卷

1. P1
   1. 1.Aging is an effective solution to priority inversion
   2. 2.Dual-mode operation is supported by the CPU to protect the OS from applications.
   3. 3.TLB works well because of spatial locality and temporal locality, where temporal locality means accesses to the same page tend to be close in time
   4. 4.Peterson's solution is an example of the spin-based locks
   5. 5.TLB entries can be extended with ASID to avoid TLB flushes during context switch
   6. 6.In linux, kernel logic addresses are physically continuous; most kernel data structures, like page tables or per-process kernel stacks , are stored in kernel logic address.
   7. 7. Memory-mapped I/O does not need special I/O instructions to operate the I/O ports and registers.
   8. 8.SJF can be regarded as dynamic priority scheduling where its priority is the next CPU burst time.
   9. 9.A priority scheduling algorithm must be preemptive
   10. 10.Exit() is always invoked when the process terminates
   11. 11.seL4 is a formally verified micro kernel.
   12. 12.A process switches from running to waiting state when it has used up its CPU quota and begin to wait until its next turn
   13. 13.Copy-on-write allows the parent process and the child process to share memory, so race condition may occur if they write to the same global variable concurrently.
   14. 14.Peterson's solution can be extended to more than two processes with some modification
   15. 15.When CPU scheduling is considered, a process can be described as either I/O bound or memory bound
   16. 16.DMA can bypasses CPU to transfer data directly between I/O device and memory
   17. 17.If the size of a page frame is 512 bytes, the latest significant 10 bits will be used as page offset in the virtual address
   18. 18.Shortest-job-first scheduling algorithm is optimal with respect to the average turnaround time
   19. 19.In linux completely fair scheduler, a process with higher priority has higher decay factor for its virtual run time
   20. 20.Bounded waiting requires that a process trying to enter the critical section will eventually get in if no process is currently in it.
   21. 21. Page table pages cannot be swap out to the disk by the linux kernel
   22. 22.IA-32 only supports 6 segments per process as it only has six segment registers.
   23. 23.The inverted page table is used to translate physical addresses into virtual addresses
   24. 24.DMA controllers can steal memory access cycle from the main CPU
   25. 25.The memory management unit(MMU) is a software component of the operating system to translate logical addresses to physical addresses
   26. 26.When a user process accesses a virtual address, it is the operating system that converts the virtual address into a physical address.
   27. 27.With paging, virtually continuous memory can be discontinues.
   28. 28.Both segmentation and paging schemes are used in IA-32
   29. 29.A round-robin scheduling algorithm is non-preemptive, because it does not preempt the running process when another process switches from waiting to ready.
   30. 30. Re-parenting happens when the parent process terminates before the child process.
2. P2
   1. 1.A solution to the critical problem must satisfy\_, \_and \_
   2. 2.The sv39 paging mechanism of the riscv64 architecture supports the hugepage mechanism. The virtual address of sv39 is composed of a 9-bit third first level virtual page number, a 9-bit second level virtual page number, a 9-bit third level page number, and a 12-bit offset. What are the page size of a Gigapage吉页, Megapage巨页, and page基页
   3. 3.The limitations of the Bas&Bounds schemes are\_,*\_,\_*(two correct blanks get full points)
   4. 4.What is Translation Look-aside Buffer(TLB)? When do uCore need to refresh TBL?
   5. 5.The limitations of the segmentation scheme are\_\_, \_\_, \_\_, \_\_, three full points
   6. 6.What are the three privilege levels of RISC-V?
   7. 7. What are three general methods used to pass system call parameters?\_*,\_*, \_\_
   8. 8. Hard link and soft link in iNode-based file systems are different.When creating a hard/soft link, \_ ;when deleting a hard/soft link, \_
   9. 9.The FAT32 file system stores file names in\_\_\_ and file attributes in \_, but ext2/3 file system stores file names in \_\_\_and file attributes in \_.two gets full
   10. 10.What are the three thread models for mapping user-level thread to kernel-level thread
   11. 11.The memory content at address 0x20 is 0xe7, address 0x21 is 0x34, address 0x22 is 0x42, address 0x23 is 0xdd, What is the value of an integer at address 0x20 if the CPU is little endian?
   12. 12.\_is the phenomenon in which increasing the number of page frames results in an increase in the number of page faults for certain memory access patterns. This phenomenon is commonly experienced when using the \_ page replacement algorithm.