OS Summary

**Concept**

1. user mode and kernel mode
2. a process P creates several threads
3. the Dining Philosophers problem
4. the page offset in the logical address
5. the disk space allocated for this file
6. System calls
7. The state transition is possible for a process
8. critical resource and critical section
9. The outer page table and the second-level page table
10. file data organization
11. a single-processor system
12. concurrency and parallelism
13. the TLB and the page table
14. multiprogramming
15. Metadata
16. The difference between a program and a process
17. Starvation
18. pure demand-paging
19. DMA
20. context switch
21. the effective memory access time
22. the bit map
23. block devices and character devices
24. multithreading models，one-to-one
25. the logical address (in hexadecimal) with a page size of 1024 bytes，computing page offset.
26. What is the seek time?
27. for describing the access control information of a file for different class of users, and each kind of file operation has an associated access control bit

**Questions**

1. process context and context switch
2. the scheduling algorithm **SJF** (shortest job first). the scheduling algorithm **RR** (round-robin) with time quantum **X milliseconds,** Optimal replacement. average **waiting time and** the average **turnaround time.**
3. a demand paging memory management system with TLB. Translate the virtual address XXXXH to the physical address. Computing the access time.
4. FIFO (first-in-first-out) replacement, LRU (least-recently-used) replacement, computing page faults.
5. Disk scheduling algorithm, computing the total distance (in cylinders) that the disk arm moves. **FCFS** (first-come, first-served) scheduling algorithm, **LOOK** (i.e. **SCAN** scheduling without going to the end of the disk) scheduling algorithm
6. a file system that adopts **linked allocation** of disk blocks.
7. a **process control block (PCB)**. A PCB contains many pieces of information associated with a specific process. the **three** main **process states.**
8. a file system that adopts **multi-level indexed allocation** of disk blocks

**Programming**

1. Reader-Writer problem, Producer-consumer problem.