重庆大学　操作系统　课程试卷

A卷
B卷

2012~2013 学年　第 一 学期

开课学院：计算机　课程号：18012035　考试日期：2012.12.20

考试方式：开卷　闭卷　其他　　考试时间：120 分钟

题 号	一	二	三	四	五	六	七	八	九	十	总分
得 分											

一、单项选择题（每题 2 分，共 30 分）

1. An OS is a program that controls the execution of application programs,it can be thought of as having three objectives:Convenience,Efficiency and （ A ）

A. Ability to evolve　　B. Ability to stablize

C. Ability to safe　　D. Ability to share

2. Critical Section is a (D)

A. buffer　　B. data section

C. synchronization mechanism　　D. program segment

3. Which of following reasons can explain why the running state is switched to ready state for a process? (C)

A. waiting some resources　　B.to be scheduled to occupy CPU

C.CPU timeout　　D.some event happened

4. About the node of process execution,which description is correct?(C)

A.The user mode refers to the kernel of OS.

B.The mode of process execution includes system mode and control mode.

C.When a user calls a system service,the mode is set to the system mode.

D.When a interrupt triggers execution of an operation system routine,the mode is set to user mode.

5.When output，the speed of the CPU is much higher than the printer, in order to solve this problem, can use (C).

A. parallel technology　　B. channel technology

C. Buffering　　D. virtual memory technology

6.When a process is compared with a thread,the correct statement is (B)

A. A thread includes a virtual address space to hold its image.

B. It takes far less time to create a new thread in a existing process than to create a brand-new process.

C. In OS,the unit of dispatching is usually refered to as a process,while the unit of resource ownership is referred to as a thread.

D. All above are not correct.

7.In paging system,the size of a page is 1Kbyte,if a process has a page table as follows, the logical address of an instruction is 2660,please compute its corresponding physical address.(B)

A. 2660.　B.7880　C.7168　D.1024

page	frame
0	4
1	6
2	7
3	9

8. In the file system，using of technique of a bit table is to achieve (B).

A. A disk drive scheduling　　B. disk space management

C. The file access　　D. file directory search

9. Which is not necessary for creating process (A)

A. The CPU is assigned to the process by scheduler.

B. Constructing a PCB.

C. Allocate memory for the process

D. The PCB is put into the Ready Queue.

10. In a file system of multi-level directory, the speed of the file retrieval can be improved by (C)

A. avoiding duplication of names;　B. restricting access rights;

C. using relative path;　　D. restricting the number of sub-directories

11. The aim of using virtual memory is to (A)

A. expend the main memory;　　B. expend the secondary storage

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C. protect memory;　　D. improve the access speed.

12. If the file is not fixed size and accesses directly, which file structure should be selected:(　　)

A . pile　　B. sequential　　C. indexed　　D. random

13. When reading 1K data from a disk, which cost is biggest:(　　)

A. Seek time　　B. rotational delay time

C. transfer time　　D. Access time

14. Which of following schedule policies has good balance between short task and long task?(　　)

A.FCFS　　B. Round robin　　C. SPN　　D.SRT　　E. HRRN

15.If the system spends most its time swapping pages rather than executing instructions, this leads to a condition known as(　　)?

A thrashing　　B.placement　　C.page demanding　　D.local principle

二．填空题（每空 2 分，共计 18 分）

1. There are three techniques for performing I/O ,they are_____,_____, _____.

2. The conditions for deadlock include: mutual exclusion,_____,_____,and _____.

3. the basic requirement for the execution of concurrent processes is _ _____.

4. Relocation refers to convert logical address to _____

三、判断题（每题 1 分，共 7 分）

1.（　）When a process's state is transferred from Waiting to Ready State, There must be a process whose state is transferred from Ready State to Running State.

2.（　）Paging memory management technique has no external fragmentation.

3.（　）System Call is a unique interface supported by OS for programmer.

4.（　）The process is dynamic execution of a program; The program is the static text of a process.

5.（　）Real-time operating system must react to the outside request within the prescribed time.

6.（　）If a system with m process is deadlocked, the number of deadlock process k must meet 2≤k≤m.

7.（　）In nonpreemptive scheduling algorithms, SPN provides the minimum average waiting time for a batch of jobs that arrive at the same time. Assume that the scheduler must always execute a task if one is available.

四、名词解释:（共 16 分）

1.Microkernel　architecture（3 分）

2. The principle of locality（3 分）

3.The types of processor scheduling and main task of each type。（6 分）

4. The differences between logical I/O and device I/O?（4 分）

五、综合题（共计 29 分）

1. *N* processes share *M* resource units that can be reserved and released only one at a time. The maximum need of each process does not exceed *M*, and the sum of all maximum needs is less than *M* + *N*. Prove that a deadlock cannot occur.(7 分)

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2. The OS allocates 4 page frames to each active process,initially no page in the main memory,if a process demands pages as follows:

   3,4,5,6,1,0,2,3,6,3,2,1

   please use OPT and LRU policy separately to replace the pages in memory,and calculate the totality of Page fault.（8 分）

3. There exsits a disk with 200 tracks numbered 0~199. If the head is serving at the track 34,and the head finished the request from track 69 just now. Some requested tracks in the order as follows: 56,23,47,90,11,160,89,50 （6 分）

（1）Use SSTF policy to schedule the request,please write the sequence of tracks,and compute the average seek length.

（2）Use SCAN policy to schedule the request,please write the sequence of tracks,and compute the average seek length.

4. there is a plate that can hold only one fruit,The father’s work is to put an apple on the plate each time, the mother puts an orange on the same plate each time.the daughter gets the apple from the plate,and the son gets the orange from the plate, please describe these processes with semaphore.（8 分）