一、单项选择题（本大题共 11 小题，每小题 2 分，共 22 分)

提示：在每小题列出的四个备选项中只有一个是符合题目要求的，请将其代码填写在下表中。错选、多选或未选均无分。

1．Which one belongs to the secondary storages（　）？

(A) The main memory

(B) The caches between main memory and disks

(C) The disks

(D) The registers

2．Which one is not part of the process images（　）？

(A) Program code

(B) Program data

(C) PCB

(D) Process users

3．Why some processes are suspended（　）？

(A) There is out of memory

(B) The CPU cannot support so many processes

(C) They have to wait for some events

(D) None of the above

4．Compared to KLT, which one is the advantage of ULT:　（　）

(A) They can be assigned to multiple processors

(B) The thread blocking will not results in the blocking of the process

(C) Less execution time

(D) Less switch time between threads

5．Typically, as the page size beging to increase from little volume, the number of page faults will:

（　）

(A) Monotonically decreasing

(B) Monotonically increasing

(C) First increasing and then decreasing

(D) None of the above

6．To prevent Hold-and-wait condition of dead lock, we can:　（　）

(A) Assign an order of resource application

(B) Require the process holds all the resources before they can be put into the ready list

(C) Let the resources can be preempted

(D) All of the above

7．Which one is not true about the Critical Sections　（　）？

(A) Only one program at a time is allowed in its critical section

(B) Usually, the code which operates printer can be critical section

(C) The resources which can be visited by one process at a time are critical section

(D) Semaphore can be utilized to protect critical section

8．For the combined paging and segmentation memory management mechanism, the modify

bit is in:　（　）

(A) The page table entry

(B) The segmentation entry

(C) The TLB entry

(D) None of the above

9．The translation look aside buffer is designed to:　（　）

(A) Store the recently visited segmentation entry

(B) Store the recently visited page entry

(C) Store the most frequently visited pages

(D) Store the most frequently visited segmentation

10．Which one of the following uniprocessor Scheduling strategy can not benefit short process

（　）？

(A) FCFS

(B) RR

(C) SRT

(D) SPN

11．The chained allocation methods of files is suitable for:　（　）

(A) Sequential files

(B) Pile file

(C) Binary file

(D) None of the above

二、名词解释题（本大题共 5 小题，每小题 3 分，共 15 分）

提示：解释每小题所给名词的含义，若解释正确则给分，若解释错误则无分，若解释不准确或不全面，则酌情扣分。

1．DMA

2．Ready/Suspend

3．Memory compaction

4．Dispatcher

5．Resident set

三、简答题（本大题共 5 小题，每小题 5 分，共 25 分）

1．Give 3 different restore strategies, once a deadlock is detected

2．List and briefly define five file organizations.

3．Please describe the page replacement policy of clock strategy

4．What is the difference between RR and VRR? How VRR avoids the disadvantages of RR.

5．What is the advandage of HRRN compared with FCFS and SPN?

四、问答题（本大题共 3 小题，共 38 分）

1．There are 5 processes: P1, P2, P3, P4, P5, and 3 types of resources: A, B, C. The current resource allocation state was listed by the following tables: （共 13 分）

	Claim			Allocation		
	A	B	C	A	B	C
P1	5	5	9	2	1	2
P2	5	3	6	4	0	2
P3	4	0	11	4	0	5
P4	4	2	5	2	0	4
P5	4	2	4	3	1	4

Available		
A	B	C
2	3	3

Please answer the following questions by Banker's Algorithm.

(A) The current stats are safe state? Please provide the reasons and steps.

(B) If process P2 make a request {0, 3, 3}, the OS should accept it? Why?

2．There are 4 processes: P1, P2, P3, P4, and 5 types of resources: A, B, C, D, E. The current resource allocation state as followed: （共 13 分）

Process	Arrival Time	Service Time
P1	0	3
P2	2	8
P3	4	2
P4	6	4

(A) Draw Gantt charts that illustrate the execution of these processes using first-come-first served (FCFS), shortest process next (SPN), Shortest remaining time (SRT), with time slicing

q = 1.

(B) Calculate Turnaround time (Tr) and Tr/Ts of each process for each of the scheduling algorithm.

3．Suppose there are 3 processes: P1,P2 and P3 corporate with eacher other to print data, and they share two buffers B1 and B2, and they strickly obey the following rules:. (12 分)

(1) each time P1 generate data into buffer B1;

(2) each time P2 takes the data from B1 and put it into B2 after some modification;

(3) each time P3 takes the data from B2 to print.

The buffer B1 or B2 can be visited justy by one process at any time, please fill the blanks of the following algorithms with semaphore operation: seamwait(?)and seamsignale(?).

Semaphore s1=1;

Semaphore s2=0;

Semaphore s3=_____;　(1)

Read Process	Move Process	Print Process

char x;
while (true)
{
　Generate data x;
　._____;　(3)
　　B1 = x;
　._____;　(4)
}
	char x, y;
	while (true)
	{
	　._____;　(5)
	　x = B1;
	　._____;　(6)
	　Process x,
	　store the result to y;
	　._____;　(7)
	　B2 = y;
	　._____;　(8)
	}
		char x;
		while (true)
		{
		　._____;　(9)
		　x = B2;
		　._____;　(10)
		　Print x;
		}