复查测验提交: 第5章 CPU调度 作业

用户	工科试验班（信息） 裴弈心
课程	操作系统
测试	第5章 CPU调度 作业
已开始	19-10-14 下午3:49
已提交	19-10-16 上午12:49
截止日期	19-10-20 下午11:30
状态	已完成
尝试分数	得 68 分，满分 77 分
已用时间	32 小时 59 分钟
显示的结果	所有答案, 已提交的答案, 正确答案

问题 1

得 8 分，满分 10 分

Consider the following set of processes, with the length of the CPU-burst time given in milliseconds:

Process	Burst Time	Priority
P_1	10	3
P_2	1	1
P_3	2	3
P_4	1	4
P_5	5	2

The processes are assumed to have arrived in the order P_1, P_2, P_3, P_4, P_5, all at time 0.

a. Draw four Gantt charts illustrating the execution of these processes . using FCFS, SJF, a nonpreemptive priority (a smaller priority number implies a higher priority), and RR (quantum = 1) scheduling.

b. What is the turnaround time of each process for each of the scheduling algorithms in part a?

c. What is the waiting time of each process for each of the scheduling algorithms in part a?

d. Which of the schedules in part a results in the minimal average waiting time (over all processes)?

所选答案: (a) FCFS:(因为图表样式原因，起点处TIME 0省略)

P1 P2 P3 P4 P5

10 11 13 14 19

SJF: (因为图表样式原因，起点处TIME 0省略)

P2 P4 P3 P5 P1

1 2 4 9 19

nonpreemptive priority: (因为图表样式原因，起点处TIME 0省略)

P2 P5 P1 P3 P4

1 6 16 18 19

RR: (因为图表样式原因，起点处TIME 0省略)

p1 p2 p3 p4 p5 p1 p3 p5 p1 p5 p1 p5 p1 p5 p1

1 2 3 4 5 6 7 8 9 10 11 12 13 14 19

(b) FCFS:10+11+13+14+19 = 67ms
SJF: 1+2+4+9+19 = 35ms
nonpreemptive priority: 1+6+16+18+19 = 60ms
RR: 19+2+7+4+14 = 46ms
(c) FCFS:67-19 = 48ms
SJF: 1+2+4+9 = 16ms

nonpreemptive priority: 1+6+16+18 = 41ms

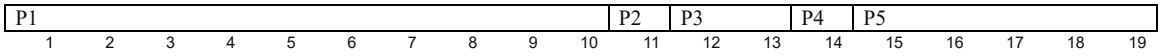
RR: 9+1+5+3+9 = 27ms

(d) SJF results in the minimal average waiting time.

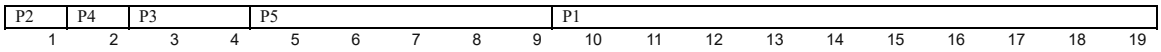
正确答案:

a. Gantt Charts

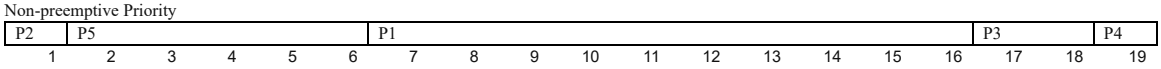
FCFS



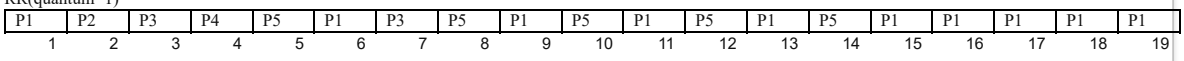
SJF



Non-preemptive Priority



RR(quantum=1)



b. Turnaround Time

Process	FCFS	SJF	NPP	RR(quantum=1)
P1	10	19	16	19
P2	11	1	1	2
P3	13	4	18	7
P4	14	2	19	4
P5	19	9	6	14
Average	13.4	7.2	12	9.2

c. Waiting Time

Process	FCFS	SJF	NPP	RR(quantum=1)
P1	0	9	6	9
P2	10	0	0	1
P3	11	2	16	5
P4	13	1	18	3
P5	14	4	1	9
Average	9.6	3.2	8.2	5.4

d. According to the average waiting time shown in the table above, Shortest Job First has the minimal average waiting time over all processes.

问题 2

得 7 分，满分 10 分

The following processes are being scheduled using a preemptive, roundrobin scheduling algorithm.

Process	Priority	Burst	Arrival
P1	40	20	0
P2	30	25	25
P3	30	25	30
P4	35	15	60
P5	5	10	100
P6	10	10	105

Each process is assigned a numerical priority,with a higher number indicating a higher relative priority. In addition to the processes listed below, the system also has an **idle task** (which consumes no CPU resources and is identified as *Pidle*). This task has priority 0 and is scheduled whenever the system has no other available processes to run. The length of a time quantum is 10 units. If a process is preempted by a higher-priority process, the preempted process is placed at the end of the queue.

a. Show the scheduling order of the processes using a Gantt chart.

b. What is the turnaround time for each process?

c. What is the waiting time for each process?

d. What is the CPU utilization rate?

所选答案： (a) 因为图表样式原因，起点处TIME 0省略

P1 P1 Pidle P2 P3 P2 P3 P4 P2 P3 P4 Pidle P5 P6 P5

10 20 25 35 45 55 60 70 75 85 90 100 105 115 120

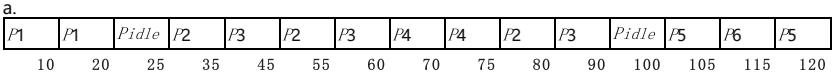
(b) P1: 20ms P2: 50ms P3: 55ms P4: 30ms P5: 20ms P6: 10ms

(c) P1: 0ms P2: 25ms P3: 30ms P4: 15ms P5: 10ms P6: 0ms

(d) CPU utilization rate = （120-15）/120 = 87.5%

正确答案：

a.



b.

P1	P2	P3	P4	P5	P6
20	55	60	15	20	10

c.

P1	P2	P3	P4	P5	P6
0	30	35	0	10	0

d.

105/120=87.5%

问题 3 得 9 分，满分 9 分

Using the Windows XP scheduling algorithm, what is the numeric priority of a thread for the following scenarios?

a. A thread in the REALTIME PRIORITY CLASSwith a relative priority of HIGHEST. [ch53a]

b. A thread in the NORMAL PRIORITY CLASS with a relative priority of NORMAL. [ch53b]

c. A thread in the HIGH PRIORITY CLASS with a relative priority of ABOVE NORMAL. [ch53c]

ch53a 的指定答案: 26

ch53b 的指定答案: 8

ch53c 的指定答案: 14

ch53a 的正确答案:		
评估方式	**正确答案**	**区分大小写**
完全匹配	26	
ch53b 的正确答案:		
评估方式	**正确答案**	**区分大小写**
完全匹配	8	
ch53c 的正确答案:		
评估方式	**正确答案**	**区分大小写**
完全匹配	14	

问题 4 得 4 分，满分 8 分

Which of the following scheduling algorithms could result in starvation?

所选答案: Priority

答案: First-come, first-served
Shortest job first
Round robin
Priority

问题 5 得 4 分，满分 4 分

when round-robin(RR) scheduling algorithm is used to allocate the CPU to each process and a running state process uses up a time quantum, the state of that running process will become ____.

所选答案: A. Ready

答案: A. Ready
B. Running
C. Terminated
D. Waiting

问题 6 得 4 分，满分 4 分

下列选项中，满足短任务优先且不会发生饥饿现象的调度算法是？

所选答案: B. 高响应比优先

答案: A. 先来先服务
B. 高响应比优先
C. 时间片轮转
D. 非抢占式短任务优先

问题 7 得 4 分，满分 4 分

A measure of the number of processes completed per time unit is called?

所选答案: B. Throughput

答案: A. Response time
B. Throughput
C. CPU utilization
D. Waiting time

问题 8 得 4 分，满分 4 分

One of the problems with priority scheduling is ____ .

所选答案: ✓ B. starvation

答案: A. process death

✓ B. starvation

C. average waiting time

D. aging

问题 9 得 4 分，满分 4 分

Suppose 4 processes arrive at the same time and the average execution time of every process is 2 hours. If they run on a CPU one by one, then the average turnaround time is ____.

所选答案: ✓ A. 5 hours

答案: ✓ A. 5 hours

B. 2.5 hours

C. 1 hour

D. 8 hours

问题 10 得 4 分，满分 4 分

Why the Shortest-Job-First process scheduling cannot be implemented?

所选答案: ✓ A. The length of the next CPU burst is not known

答案: ✓ A. The length of the next CPU burst is not known

B. It requires special hardware

C. It is too complex

D. The length of the next I/O burst is not known

问题 11 得 4 分，满分 4 分

The best process scheduling algorithm in terms of average waiting time is ____ ?

所选答案: ✓ C. SJF/SPF

答案: A. FCFS

B. Round-Robin

✓ C. SJF/SPF

D. Priority

问题 12 得 4 分，满分 4 分

Among CPU scheduling policies, First Come First Serve (FCFS) is attractive because ____.

所选答案: ✓ B. it is simple to implement

答案: A. it minimizes the average response time in the system

✓ B. it is simple to implement

C. it minimizes the average waiting time in the system

D. it minimizes the total waiting time in the system

问题 13 得 4 分，满分 4 分

下列进程调度算法中，综合考虑进程等待时间和执行时间的是？(

所选答案: ✓ A. 高响应比优先调度算法

答案: ✓ A. 高响应比优先调度算法

B. 先来先服务调度算法

C. 时间片轮转调度算法

D. 短进程优先调度算法

问题 14

得 4 分，满分 4 分

下列选项中，降低进程优先级的合理时机是？

所选答案: A. 进程的时间片用完

答案: A. 进程的时间片用完

B. 进程长期处于就绪队列中

C. 进程从就绪态转为运行态

D. 进程刚完成I/O，进入就绪队列

2020年1月4日 星期六 下午04时00分21秒 CST

← 确定