IC221 System Programming
Spring 2016
HW9

NAME:_____

COLLABORATOR(S):_____

5/3/2/1 1. Match each scheduling strategy to its description:

Shortest Job Next ___	(a)	Every job runs for a set amount of time before moving on to the next
Preemptive Round Robin ___	(b)	Job's of the highest priority always runs next.
Priority Scheduling ___	(c)	Jobs are run in the order they are created
First Come First Serve ___	(d)	Jobs in the same group run with the same priority, but other priorities might run too.
Multilevel Queue Scheduling ___	(e)	Job that finishes first runs with higher priority

5/3/2/1 2. Which of the above scheduling algorithms is used by Unix-like Operating Systems?

5/3/2/1 3. Ther term "nice" is usd to describe the priority of a process in Unix systems. A processs with a higher priority has a nice value that is low or high? Explain?

5/3/2/1 4. Why is it the case that an unprivlidged process can only decrease its priority but cannot increase its priority?

5/3/2/1 5. Run the **ps** command on any machine in the 302 lab. There exists a process running with level 16 and level 15. What is the name of that command:

Machine: mich302csd [ ] u.academy.usna.edu

Nice 15 Command: [ ] pid: [ ]

Nice 16 Command: [ ] pid: [ ]

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5/3/2/1 6. What are three main process states? Explain each.

5/3/2/1 7. Provide two reasons why a process may be waiting but not running?

8. For the small program snippet, describe the likely state that the program *could* be in at the marks? Explain.

```
int d,i,j,sum;
for(i=0;i<100;i++){
     printf("Give me a number:\n");
(a) → scanf("%d",&d);

     sum = 0;
     for(j=0;j<d;j++){
          sum += j; ← (b)
     }

     printf("Sum is: %d\n", sum);
}
```

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(a) (b)

5/3/2/1 9.What is a zombie and how are they created? (process zombies, not human zombies)

5/3/2/1 10. Why are zombies a bad thing? (process zombies not human zombies)

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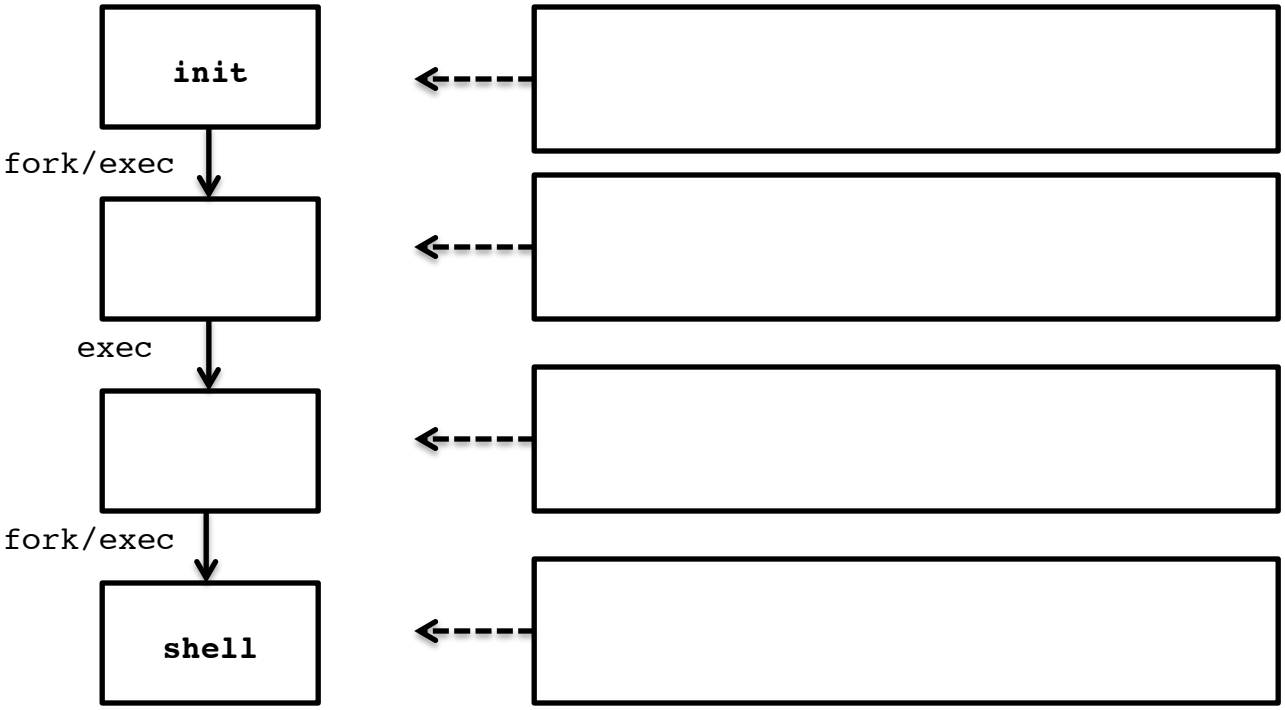
4/2/1 11. What is an orphan process? What process "adopts" all orphans?

3/2/1 12. What is a tty? The modern and the anachronistic tty?

3/2/1 13. How many core tty's are launched at boot? One of the tty's is reserved for what purpose?

4/2/1 14. The terminal device driver controls and manages access to what service?

5/3/2/1 15. From **init** complete the chain exec's and fork's all the way down the shell. Describe the task of each.



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5/3/2/1 16. The terminal device driver handles a number of signals to jobs. Which keys do you press to indicate to the terminal device driver to terminate a job and which do you press to have the driver stop a job?

5/3/2/1 17. What is the difference between a **job** and a **process** with resepect to tasks executing from the shell?

18. For each of the sequence of commands, what would be the output of **jobs**, generally. Be sure to indicate which jobs are running and which are stopped.

4/2/1 a)
```
#> cat &
#> vi &
#> jobs
```

4/2/1 b)
```
#> sleep 100 &
#> sleep 200 &
#> jobs
```

4/2/1 c)
```
#> cat
 ^Z
#> bg
#> jobs
```

5/3/2/1 19. What happens when a background process tries to read from **stdin**?

5/3/2/1 20. What happens when a background process tries to write to **stderr** or **stdout**? Why does this differ from **stdin**?

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