

NAME: _____

COLLABORATOR(S): _____

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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

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2. Which of the above scheduling algorithm is used by Unix-like Operating Systems?

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3. The term "nice" is used to describe the priority of a process in Unix systems. A process with a higher priority has a nice value that is low or high? Explain.

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4. Run the **ps** command on any machine in the 302 lab. There exists a command with nice level 16 and 15. What is the name of that command?

Machine: mich302csd u.academy.usna.edu

Nice 15 Command:

pid:

Nice 16 Command:

pid:

5. Provide **two** reasons why a process may be waiting and not running?

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6. For the small program snippet, describe the likely states that the process *could* be in at the marks? Explain.

```

    for(i=0;i<100;i++){
(a) → printf("Give me a number:");
        fflush(stdout);
        scanf("%d", &d) ← (b)

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

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

```

(a)

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(b)

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(c)

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7. What is a zombie and how are they created? (process zombies, not human zombies).

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8. What is a tty? The modern and the anachronistic tty.

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9. The **/etc/passwd** file stores information about each user, including the user's preferred login shell. To learn about the fields in the **/etc/passwd file** run **man 5 passwd**. Log into a lab machine to answer the following questions.

(a) Find your entry in the **/etc/passwd** file, what is your user id and what is your group id?

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(b) What is your login shell?

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(c) Use your vast knowledge of Unix commands to list all the unique login shells found in the **/etc/passwd** file.

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(d) Two of these login shells are different than the others. Use the man pages to learn about these two login shell options and what their purpose might be.

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10. 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?

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

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```
(a) #> emacs hello.txt &
    #> cat
    ^Z
    $> jobs
```

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```
(b) #> emacs hello.txt &
    #> fg
    ^Z
    #> emacs hello.txt &
    ^Z
    #> jobs
```

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```
(c) #> sleep 100 &
    #> sleep 200 &
    #> jobs
```

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```
(d) #> sleep 100 &
    #> cat &
    #> jobs
```

12. What happens when a background process tries to read from **stdin**?

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